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# EARLY INDIAN ECONOMICS

## Studies in the Economic Life of Northern and Western India *c.* 200 B.C.—300 A.D.

G. L. ADHYA

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# FOREWORD

THE period of India's history between the fall of the Mauryas and the rise of the Guptas is one of the obscurest ages of her past. In it, successive waves of invaders poured through the north-western passes and greatly affected the established order and the old ways of life and thought, so that at the end of this dark period a civilization appeared with a complexion very different from that of the Mauryas. While this period is so inadequately documented from the point of view of political history, it was an age when much Smṛti literature was composed and when contact between India and the Western world was closer and more vigorous than ever before. During this period, Indian overseas trade greatly increased, Western merchants visited the subcontinent in large numbers, and the first great religious edifices of India to have survived, famous and beautiful Buddhist stūpas and cave-temples such as those at Sanchi, Amaravati and Karla, were constructed. Simultaneously, Hinduism, as distinct from the older Vedic Brahmanism, was taking on something of its present form, the older Buddhism was transmuting itself into the mystical and theistic Mahāyāna, and the caste system, as distinct from the system of the four classes, was beginning to crystallize. Therefore, this dark period was an exceedingly important one and, from the point of view of those who dwelt in parts of the subcontinent not subjected to invasion, it was obviously not a dark period at all, for the many short votive inscriptions on stūpa railings and on the walls of cave-temples give evidence of a flourishing economy where many ordinary craftsmen were wealthy enough to make quite large donations to religious causes. It was on the basis of this flourishing economy, from which all classes of society must have benefited to some extent, that the high water-mark of India's culture, the age of the Guptas, arose.

In this book, Dr. G. L. Adhya has thrown much fresh light on one of the most important periods of Indian history. He is particularly to be commended for his very thorough analysis of the trade with the Roman Empire, which has rarely been

studied in depth by an Indian scholar. Here in particular, he has produced work of real importance.

In all fields he has found something fresh to say, and his interestingly written and scholarly study will, I am sure, long remain a standard work on the subject.

*University of London* A. L. BASHAM
*7 June, 1963*

# PREFACE

This work was my doctoral thesis submitted to the University of London in 1962. I acknowledge with gratitude all kinds of help and guidance that I received from my supervisor Prof. A. L. Basham. Without his constant encouragement I could not have finished this thesis. I also acknowledge the assistance of Prof. E. H. Warmington, Dr. J. de. Casparis and Dr. J. Wolters for handling historical materials of various kinds.

The wide contact between ancient India and the world at large made it necessary for the study to cover a fairly large area. The different regional departments of the School of Oriental and African Studies, where I was a student, proved very helpful in the study of a subject of this kind. I thank all of them very much. I also appreciate the generous help that I received from the members of the staff of the School Library, University of London Library, Commonwealth Relations Office Library and the British Museum.

For financial assistance I thank the School authorities, the University of London Central Research Fund and the Trustees of the Edwina Mountbatten Grants to Commonwealth students.

I record the friendly assistance of Miss. M. Courtman for preparing the map and of my student Sree Asok Bandopadhyay for reading the proofs.

*Delhi*
*June, 1966*

G. L. Adhya

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## ABBREVIATIONS

AGA: Aga-nānūṟu.
AI: Ancient India.
AIU: Age of Imperial Unity.
Artha: Arthaśāstra.
ASR: Annual Report of the Archaeological Survey of India.
ASWI: Archaeological Survey of Western India.

BEFEO: Bulletin de l'Ecole Française d'Extrême Orient.
BMC: British Museum Catalogue of Coins of the Greek and Scythic Kings of Bactria and India.
BMC, Ancient India: British Museum Catalogue of Coins of Ancient India.
BMC, Andhra: British Museum Catalogue of Coins of the Andhra Dynasty, the Western Kṣatrapas, the Traikuṭaka Dynasty and the Bodhi Dynasty.
BMC, Arabia: British Museum Catalogue of Greek Coins of Arabia, Mesopotamia and Persia.
BMC, China: British Museum Catalogue of the Chinese Coins from the Seventh Century B.C. to 621 A.D.
BMC, Parthia: British Museum Catalogue of Greek Coins of Parthia.
BSOAS: Bulletin of the School of Oriental and African Studies.

CAH: Cambridge Ancient History.
CHBE: Cambridge History of the British Empire.
CHI: Cambridge History of India.
CII: Corpus Inscriptionum Indicarum.
Comp HI: Comprehensive History of India.

de la Vallée Poussin: L'Inde aux temps des Mauryas et des Barbares, Grecs, Scythes, Parthes et Yue Chi.
Divyā: Divyāvadāna.

EA: Etudes Asiatique.
EI: Epigraphica Indica.

Hirth: The Story of Chang K'ien. JAOS, XXXVII (1917) pp. 89f.

IA: Indian Antiquary.
IHQ: Indian Historical Quarterly.

JA: Journal Asiatique.
JAI: Journal of the Anthropological Institute of Great Britain and Ireland.
JAOS: Journal of the American Oriental Society.
JASB: Journal of the Asiatic Society of Bengal.
JĀT: Jātaka.
JBBRAS: Journal of the Bombay Branch of the Royal Asiatic Society.
JB(O)RS: Journal of the Bihar (and Orissa) Research Society.

JESHO: Journal of the Economic and Social History of the Orient.
JGIS: Journal of the Greater India Society.
JISOA: Journal of the Indian Society of Oriental Arts.
JMBRAS: Journal of the Malay Branch of the Royal Asiatic Society.
JNES: Journal of the Near Eastern Society.
JNSI: Journal of the Numismatic Society of India.
JRAS: Journal of the Royal Asiatic Society.
JSS: Journal of the Siam Society.

Mahā: Mahābhārata.
MASI: Memoir of the Archaeological Survey of India.
MIC: Mahenjo-daro and the Indus civilisation.
Milinda: Milindapañha.
MJTG: Malay Journal of the Tropical Geography.

NC: Numismatic Chronicle.

PHAI: Political History of Ancient India.
PIHC: Proceedings of the Indian History Congress.
*Periplus*: *Periplus of the Erythrean Sea.*
PURA: Pura-nāṉūṟu.

RV: Ṛg Veda.

SBE: Sacred Books of the East.
SEHHE: Social and Economic History of the Hellenistic Empire.
SEHRE: Social and Economic History of the Roman Empire.
SOAS, Seminar: Seminar on the Date of Kaniṣka held in the School of Oriental and African Studies, April, 1960.

Wylie: Notes on the Western Regions. JAI. X (1881) pp.20f.

Yāj: Yājñavalkya.

ZDMG: Zeitschrift der Deütschen Morganländischen Gesellschaft.

# INTRODUCTION

THE conventional boundaries of historical periods are still limited by major political events, and in that context what happened in Northern and Western India in the period from *c.* 200 B.C. to A.D. 300 as far as it can be reconstructed, was a medley of incidents between the consolidated regime of the Mauryas and that of the Guptas. The history of these 500 years of early India is coherent neither politically nor in any other sense. Except for the Kuṣāṇas in the north, and the Śaka Kṣatrapas and the Sātavāhanas in the west, who ruled for a considerable length of time, no other power, as far as is known, had sufficient scope to follow an integrated economic policy in its realm. But even the imperial Kuṣāṇas, whose provinces within India and outside were federally administered, could not strictly dictate terms on the economic aspects of government. The large number of coins issued by the different powers of our period indicate a developed monetary economy and possibly prosperous conditions in their respective realms. The wide and gainful trade with the outside world, which no doubt largely contributed to the attainment of this sound economic position, seems to have been regularly patronised by the ruling powers. But the relations of different governments to various other economically productive activities of the country were, as we shall see, rather uncertain. It appears that the *Arthaśāstra's* prescription of centrally enforced policies was hardly followed by any of the states of our period. So our study of the economic life of India, at a period when political forces seemingly could not give any particular orientation to the economic system and when there was little change in the methods of production, has turned into an essay of which the beginning and the end are absent. In other words, the period under discussion does not constitute an economic entity.

In our period we find, long after the exploits of the Aryans, the regular intrusion of successive foreign peoples for a few generations. The activities of these outsiders centred mainly on the north-western and western parts of India but some of them penetrated far inside. From these inroads one would expect repercus-

sions on various aspects of social and economic life of the country. From the contemporary literature it is evident that the new peoples gradually became absorbed within the society through the widening of the caste system to include them. On the economic front, except for slight modifications in the technique and form of industry and the increased use of coins, we do not observe any perceptible foreign influence. Was this due to the fact that most of the foreigners who entered India through the north-western passes in our time were of nomadic origin and thus were at a different level of cultural development from that of the sedentary Indians whom they conquered ? But the course of Indian history after this series of foreign influx hardly smacks of nomadism. Some of the foreign rulers, who descended from Central Asian tribes, patronised Indian arts and religions and became pioneers in issuing gold coins in India on a large scale. A considerable part of their energy was devoted to encouraging trade with the outside world, which flourished during the period of their domination of North-west India as never before. To this expansion of trade external factors also contributed, chief among them the consolidation of imperial Rome and the great demand for luxuries which this entailed. It is possible that in our period Upper India derived the most of the profit from the great East-West transit trade passing through its north-western passes and its ports on the east and west coasts.

In the following pages our discussion will be centred on the productive factors of the Indian economy of our period, and in the last chapter we shall try to deduce tentative conclusions as to the general economic condition of the country at that time.

## Sources

The source materials with the help of which this investigation has been made are quite varied in nature. Indigenous and foreign literary texts, epigraphy and other archaeological discoveries have all been taken into account to build up a connected story of our period.

The non-historical character of ancient Indian literature is well-known. It largely consists of texts and exegeses describing philosophical and religious ideas, ritual prescriptions and moral codes. To trace the "economic man" from sources of this type is very

difficult and our conclusions often become hypothetical. Fortunately there are the epics, the legal literature and a few other texts of our period to which we may turn for some information on secular life.

The chronological position of many of the early Indian texts is far from satisfactory. As far as possible we have not entered into disputes regarding their dates and have based our study on those sources which, on broad acceptance, are attributed to the period under discussion. As social and economic changes came rather slowly in ancient times, it seems that a meticulous dating of relevant sources is not always essential to interpret the situations mentioned by them for our purpose. That is why we think that a text like the *Arthaśāstra,* which was possibly first formulated in the fourth century B.C., may occasionally be consulted to throw light on conditions of our period.

Apart from the chronological difficulty there is also the problem of detecting the regions where the important texts were first composed. The precepts of the *Manusaṁhitā* or the *Mahābhārata* had not won acceptance throughout India as early as our period, when these are supposed to have been written. At that stage, they could at best reflect the prevailing social ideas of particular parts of North India. This regional character of the literary sources should be taken into account. We have to admit that often we have failed to handle them from this local standpoint, because minute individual study of the important texts is necessary for that purpose.

The volume of Indian literature assigned to our period is considerable, but for the reasons stated above its significance for our purpose is extremely limited. The protrayal of hum-drum daily life which provides the economic historian with the most helpful materials is not much to be found there. In the dramatic literature we expect to find such materials but in the works of contemporary playwrights such as Bhāsa and Aśvaghoṣa[1] the scenes are usually dominated either by royalty or by monks with their somewhat esoteric problems. The material aspect of life, particularly of the common man, is not much represented there.

In that respect the *Jātakas* contain plenty of helpful information about the social and economic conditions of early India. But there is much uncertainty about the date of the composition and compilation of these stories, which form a part of the Pali canonical text *Khuddaka-Nikāya.* The *Jātaka* stories consist of two parts,

[1] De and Dasgupta, *History of Sanskrit Literature,* pp.70, 101 f.

verse and prose. The verse parts are older, but still later than the bulk of the Pali canon. The prose was composed in Ceylon in the fifth century A.D., but based on an older prose version, said to have been written in Sinhalese Prakrit on the basis of a yet earlier commentary, brought orally from India. This process presumably inserted considerable changes in the text, and has made approximating some satisfactory date quite difficult. As the stories are about the previous births of the Buddha, a few earlier scholars assumed that they depict pre-Buddhist or Buddhist period. But on linguistic and other grounds the greater part of these stories seems to relate to events of a much later period.[1] Though the stories themselves may in some cases go back to the time of the Buddha, or even before, they have been so re-handled by the monks who transmitted them that it is impossible, in the present state of our knowledge, to pin them down to one particular period or one region of India. Because of this very confusing situation we have utilised this very informative section of early Indian literature only as a source of corroborative evidence. The *Jātakas* as a whole refer to conditions over a fairly long period and a minute critical analysis of them is essential before we can utilise them more satisfactorily.

From numerous other Buddhist texts, written in Sanskrit as well as in Prakrit, we have been able to collect some valuable information. The literature that developed around the heretical religions contain considerable meterial of mundane interests. Possibly the fact that the urban merchant class constituted a large number of the followers of these faiths had some bearing upon this phenomenon. The *Milidapañha*, *Mahāvastu*, *Mahāniddesa*, *Divyāvadāna* and the Jain text *Ācārañga Sūtra* have supplied us with considerable information, particularly about trade and industry.[2]

However, the epics and the *Dharmaśāstras* of Manu, Yājñavalkya and Viṣṇu[3] have provided us with the bulk of our theoretical information. Strictly speaking the injunctions of these texts constitute rather a body of moral precepts than a legal code current in our period but their influence in the subsequent development of Hindu law does not leave us in doubt as to their practi-

[1] Winternitz, *History of Indian Literature*, II, pp.115 f.

[2] De and Dasgupta, *op.cit.* pp.82-83; Law, *History of Pali Literature*, pp.11-12, 37-38

[3] Kane, *History of Dharmaśāstras*, I, pp.69, 156, 184.

cability. The narrative parts of the epics have also been helpful in enlightening us on some points in our account.

Inscriptions, which were engraved to relate the exploits of rulers in eulogistic language, or to record the transfer of properties by the royalty or common people, or to commemorate some notable events, usually serve as a comparatively reliable source of ancient Indian history. The contents of some inscriptions remain obscure because of their mutilated condition and occasionally a major difficulty arises in determining the era to which the dates mentioned in these records should be referred. A considerable number of inscriptions discovered from almost all parts of Northern and Western India have been attributed to our period. They were written mostly in the Brāhmī alphabet. In the north-western region an Indian form of the Aramaic script, the Kharoṣṭhī was used by the foreign occupiers. From the excavations of Central Asia it is evident that some inscriptions of even that remote area were written in the Kharoṣṭhī alphabet which went there no doubt through Indian traders and missionaries. The language of these records is Prakrit and Sanskrit, the latter gradually ousting the former. We have a fore-taste of the *Kāvya* style of inscriptional literature, much in vogue in the medieval period, in the Junagadh inscription (A.D. 50).[1] The little that we know of the sequence of political events of our period is to a great extent derived from these inscriptions. However, they do not adequately enlighten us about the economic conditions of that time. Only a number of inscriptions found in Western India convey a little information about the land system and the organisation of guilds of craftsmen and traders of this area, and those from Junagadh and Hathigumpha describe certain kinds of taxes and local irrigational measures. All these inscriptions are assigned to the first two centuries of the Christian era. Indian trading ventures in Egypt by the end of the Ptolemaic period, and in Central Asia and South Viet Nam in later times, can be inferred from a few inscriptions found in these places.

Like the inscriptions, the coins attributed to our period are also quite large in number and they have been very helpful in the reconstruction of different aspects of the history of this time. Two very remarkable points in the numismatic history of this period are the circulation for the first time, of die-struck coins

[1] *AI*, IX(1955) pp.215-16 (Chabra & others, *Epigraphical Research*).

with portraits, the style that came with the Indo-Greeks, and the issue of gold coins on a large scale by the Kuṣāṇas. The latter may indicate the healthy economy of the Kuṣāṇa realm. But the political significance of issuing coins should also be taken into account, particularly when we observe the eagerness of many North Indian states of fairly small size and seemingly limited trading facilities to mint their own money.

Since archaeological excavations began in India, much of the archaeologist's interest has been directed towards pre-history and proto-history and except for a few sites such as Taxila much of the excavation in historical sites has been on a comparatively small scale, intended to reveal stratification and cultural development over a long period, rather than to uncover a whole settlement of any given period. Hence the student of our period cannot derive as much information as he could wish from this dependable source. There is also difficulty in utilising archaeological materials in India as in many cases they are inadequately catalogued. Of the discoveries attributed to our period those from the upper strata of the Bhir mound and from Sirkap have been very helpful for the study of the industries of the north-western region. In other sites the acquisitions usually consist of metallic implements, sherds, beads and terracottas.

Much of our account is based on information collected from certain sections of classical literature of the West and from early Chinese texts. Because of the nature of these sources, which we shall discuss below, the statements found in them are often reliable and usually they provide certain chronological fixed points.

Some modern classicists believe that contact with oriental history which came as a result of the Persian conquest of Greece made Ionian logographers interested in writing genuine history instead of mythology.[1] From the beginning of this phase of historiography descriptions of India, which formed the easternmost part of the Persian empire, appear in many Greek texts, from Herodotus[2] and Hecataeus onwards.[3] The zeal for encyclopaedic learning which came to the Greeks as a legacy of the Sophists' teaching made their scholars write on all subjects and about all

[1] Bury, J.B. *The Ancient Greek Historians*, p. 34.
[2] McCrindle, *Ancient India as described in Classical Lit.* pp.1-5.
[3] Pearson, L. *Early Ionian Historians*, pp.80-81.

civilised countries. We learn of different aspects of India from some of their texts. Long standing political and commercial relations between India and the Mediterranean countries following Alexander's invasion allowed the writers to collect facts at close quarters and therefore many of them should be reliable. But many texts, based on first hand information, have been lost and remain only in quotations, found in later writings. In any case, as far as possible, we should try to check information from classical sources by corroborative evidence. For ignorance and the habit of fabrication often caused the ancient writers, whether of the West or of the East, to make wild statements about distant foreign countries.

Strabo's *Geography* and Pliny's *Natural History*, two voluminous texts to which we have often to turn, maintain the earlier tradition of encyclopaedic writing. Both of these works report on diverse aspects of all the countries that had relations with the Mediterranean world of their time. Strabo's book was written either in the late first century B.C. or in the early first century A.D. and Pliny completed his work in the seventies of the first century. In spite of their erudition, neither of these authors present facts in a properly systematic manner and they are almost silent about the sources of their information. Often we cannot determine whether they are quoting from old works or speaking about their own time on the basis of first hand information.[1] Of course this weakness is present to a certain extent in all ancient historiography. In any case without these two texts much about early India would have remained unknown.

The most reliable and informative western source is a layman's account—*The Periplus of the Erythrean Sea.* It is virtually the log book of a Graeco-Egyptian sailor who frequented all the ports between Myos Hormos (Abu Sha'ar) and Berenice in Egypt, and Muziris (Cranganore) and Nelcynda (near Kottayam) in South India via the coast line of South Arabia and Western India. It was written in the middle or later part of the first century A.D.[2] As the writer himself had personal experience of the ports,

[1] H. Rawlinson, *Intercourse between India and the Western World*, p.105; Pliny, *Natural History* (Loeb Ed.). Introduction pp.viii-ix.

[2] Recently a few Arabists (J. Pirénne, *Bibliotheque du Muséo*—Vol. 48, 1961; H. de Contenson, *JA*—Vol. 248, 1960) have ascribed this work to the third century A.D. It becomes fairly difficult to reconcile this dating of the Periplus

market towns and the goods exported and imported by way of the Erythrean Sea (Red Sea and Arabian Sea) he is our best guide in matters concerning India's trade with the Western countries in his period.

Some two generations later there appeared Ptolemy's Geography which has proved itself an important source book for our study. According to recent research this text in its present form was first compiled by an unknown Byzantine author of the tenth or eleventh century and thus there was enough scope for interpolation.[1] Whatever may be the case with the description of other regions, Book VII, where India up to and beyond the Ganges is described, is fairly contemporary with our periods, as is proved by the clear reference to kings ruling in Western India at that time.

The early dynastic histories of China, reports of its officials abroad and topographies provide us with some very helpful information. Some of the early Chinese reports about foreign countries are so similar to one another in their method of presentation that sometimes the authenticity of some of them raises doubt,[2] or it may be due to the very systematic way of Chinese writing. We should also take into account the motive of glorification of native countries that has accentuated many private as well as official historians in China as in the West.[3] The bureaucratic background of Chinese historiography may have affected the objectivity of some of its descriptions.

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with some of the political events mentioned there. Here are a few examples.

The Malichus line of rulers of the Nabatæans (Sec. 19) came to an end in A.D. 106 when their kingdom was annexed to the Roman empire (*CAH*, XI, pp.237, 617). Pirénne has tried to give a different meaning to this section by reading Nabatæans as Anabatæans, but in the manuscript copy of the Periplus at Heidelberg the first letter 'a' is seen as crossed off.

Mambarus or Nambanus (Sec. 41), who has been identified with the King Nahapāna of Western India, cannot be placed after Gautamīputra Sātakarṇi on epigraphical and numismatic grounds. The Sātavāhana ruler possibly reigned in the earlier part of the second century A.D. (*PHAI*, pp.409f.)

The disorderly condition of Scythia mentioned in the Sec. 38 tallies well with the situation prevailing in that region in late first century A.D. (*CHI*, I, pp.584-85).

[1] *Geographia Annaler*, Heft 3-4 (1945) pp. 318-87. (L. Bagrow, *The origin of Ptolemy's Geographia*).

[2] Hudson, *Europe and China*, p.65.

[3] Gardner, *Chinese Traditional Historiography*, pp.14-15.

The paucity of sources helpful in reconstructing the history of early India often makes us draw false conclusions by over-emphasising the meagre information, indigenous or foreign, that comes to hand. As far as possible, all types of sources need strict verification before we accept them.

There are a number of important studies on different aspects of the economic life of early India. Bose's *Social and Rural Economy of Northern India* is the most comprehensive on this subject and part of it covers our period. We have chosen a few topics and have tried to look at them intensively. As noted above, many non-Indian sources have proved very helpful to us, though we had to derive information from them mostly through translations and authoritative studies on them.

## A Resume of Political Events[1]

We shall discuss very briefly the political framework of our period to help us in following the contemporary economic trend and to see how far the latter was responsible in moulding political events. There are great controversies about chronology, genealogy, and the actual extension of different realms of this period but for our purpose we need not enter into many of them.

Whether historical events conform to patterns or are nothing but a series of emergencies, an understanding of the geographical background to those incidents is essential as "geography in its physical aspect provides a common denominator to all historical periods."[2] The mark of physiographic environment on the history of India is too patent to be stressed. Its apparent physical insularity, though it helped India to evolve a unique culture of its own, was no proof against the occasional inroads from outside from ancient times onwards.

Most of the migratory movements across the terrains of Central and Western Asia had repercussions within the Indian border. The migrants in search of a home found in the alluvial plains of Northern India a congenial atmosphere in which to settle. The rich Indo-Gangetic lands and deep water ports of Western

[1] The contents of this section are mainly common knowledge, and therefore we do not give full references for each statement. For further information the texts mentioned in foot notes may be consulted.

[2] East, *Geography Behind History*, p.20.

India, busily trading with overseas countries from fairly early times have always invited foreigners. The period under discussion which begins in the midst of a phase of political disintegration, provides a notable illustration of these characteristics of Indian history.

It has been stated that the history of India is in a large measure the story of the struggle between the newcomers and earlier inhabitants.[1] The force of the invaders becomes less the further they advance and their direction is dictated by obstacles, human as well as physical. The first half of our period witnessed the periodic incursions of these newcomers through the north-western passes. All these invaders who entered India in our period tended to concentrate themselves on north-western and western regions. As a result Magadha, the traditional seat of power in ancient India, remained in deep obscurity, as far as reported accounts go, until the Guptas were able to build an imperial structure in the beginning of the fourth century.

The seat of political power usually remains in a place which has strategic or commercial importance, or, better still, both. For long Delhi has remained the "historical focus of India", as standing between the foot of the Himalayas and the northern extremity of the Aravalli mountains. It guards the rich plains of North India. But the importance of Delhi began with the invasions of the Muslims, who took about 500 years to go beyond Delhi into the heart of the country.[2] Magadha which is the earliest seat of imperial power in India and which remained so for a long time, possibly with a few breaks, had some strategic significance.[3] But with a hinterland very rich in agriculture and minerals its capital city Pāṭaliputra occupied an economic focal point having trade connections with far ends of the country through caravan routes and navigable rivers.[4] Wherever the seat of imperial power was, either in Magadha in the east or in Delhi in the west, the trend of expansion had always been towards the Doab region.

Of the many reasons that brought about the downfall of the Mauryas their inability to provide an honest and efficient bureaucracy suitable to control a large empire was a major one. Con-

[1] *CHI*, I, pp.39-40. [2] *CHI*, I. pp.20-23.

[3] *JBBRAS*, XXXVII, Pt.2. 1952, p.180 f. (Kosambi, *Ancient Kosala and Magadha*).

[4] *Infra*. p. 96.

sequently as soon as the master-hand of Aśoka had gone disintegration ensued. This phenomenon seems to have been a regular curse in Indian politics.[1] The economic reason for this, if any, is not very explicit, but it may be suggested that the exactions from the people grew as the central control became loose.[2] More money was also necessary to meet the Greek onslaughts at the north-western frontier.

The relations between the Mauryas and the Seleucid Greeks seems to have remained cordial since Seleucus and Chandragupta came to an agreement, mentioned by Strabo and others.[3] By the end of the third century (206) B.C we find a Seleucid king crossing the Hindukush again. Marching down the Kabul Valley he faced "Sophagasenus, the king of the Indians,"[4] with whom friendship was renewed. The Greek King of Western Asia left India loaded with presents. Who this Sophagasenus or Subhagasena was, and what actually happened between him and Antiochus III, have been variously interpreted.[5]

He was perhaps a later Maurya ruler of the north-western part of the divided empire[6] and his settlement with the Seleucid king was presumably obtained at some price. But very soon the descendant of the mighty Mauryas had to give way on the vulnerable frontier of the north-west. This time (190 B.C.) the trouble came from Greeks settled in Bactria, who broke away from the Seleucid empire in the middle of the third century. The invasion of India by Antiochus III has been termed as "reconnaissance in force" and no doubt it was the nomadic pressure that turned the Graeco-Bactrians towards India. But the commercial aspect of India's north-western region seems to have been of no less importance in initiating their movements. Subsequent events justify this conclusion.

From literary sources it can be held that on the spur of their success in establishing themselves beyond the Hindukush, the Graeco-Bactrians came down to the plains and even reached the

[1] Basham, *The Indian Sub-Continent in Historical Perspective*, pp.10-11.

[2] There are not sufficient grounds to believe with Thapar (*Aśoka, the Decline of the Mauryas*, pp. 211-12) that unequal economic levels and ownership of land by the crown in excessive amounts had much to do with the downfall of the Mauryas.

[3] Strabo, XV. 724. For other references see *PHAI*, pp.271-72.

[4] Polybius, XI. 34.

[5] *CHI*, I, pp.442, 512: *PHAI*, pp.350, 361-62.

[6] *Comp. H.I.*, pp.45-46.

frontier of Magadha. But soon they had to retrace their steps to the Punjab and the North Western Frontier. They extended their hold towards the western sea-board, though how far down the Sind or beyond it they could establish themselves is difficult to decide.[1] That the Graeco-Bactrians or the Indo-Greeks were enjoying flourishing economic conditions is obvious from the number and variety of their coins. No doubt the transit trade going through their realm made them rich. To the development of Indian coinage the contribution of the Indo-Greeks is considerable. In India they were the first to introduce die-struck coins with portraits and these served as a prototype of most of the later Indian coins.

For nearly 150 years the Indo-Greeks ruled North-western India mainly under two different branches, the house of Euthydemus and the house of Eukratides. Roughly the former held power in the Eastern Punjab and the latter ruled over the region west of the Jhelum. Menander, the King Milinda of Indian literature, is the best known of the Indo-Greek kings. He probably had a modest origin[2] but from the provenances of his coins it is obvious that his power extended over a wide area comprising Western Punjab, Gandhāra and probably Sind. The large number of Menander's coins suggest a flourishing economy which seemingly resulted from commerce carried through his realm.[3] Soon after his death the Greek rule in India began to decline. This is evident from the gradual debasement of the coins of the later Indo-Greek rulers. They became even more divided among themselves and the fall of their different houses came at different times through different peoples, the Śakas, Pahlavas and Kuṣāṇas.[4] The last of the Indo-Greek rulers survived up to the middle of the first century B.C.

While the Mauryas were succeeded by the Greeks in the north-west the rest of Northern India, the Gangetic plain, Magadha and the Malwa region came for a short time, under the control of the Śuṅgas. Mainly on the evidence of the Purāṇas and the Harṣacharita, it is held that the last of the Maurya king of Magadha was killed by his general Puṣyamitra Śuṅga.[5] It is not certain whether the Greeks invaded Magadha before Puṣyamitra came

[1] We have pursued this point further in the section on foreign trade., p. 108 [2] Tarn, *Greeks in Bactria and India*, pp.141, 421.
[3] Narain, *Indo-Greeks*, p.99. [4] *Ibid.*, p.138. [5] *PHAI*, pp. 369f.

to power or after it. However, the Śuṅgas inherited the remnants of an empire which was still considerable in size. Following the earlier tradition Puṣyamitra performed *aśvamedha* sacrifices, and, according to the later testimony of Kālidāsa, this led to trouble with the Greeks.[1]

Possibly there was nothing which can be called the Śuṅga age in ancient Indian history.[2] It seems that soon after the death of Puṣyamitra Upper India began to be divided into petty states and his descendants continued to rule in Vidiśā (Basenagar, in Eastern Malwa) until they were supplanted by the Kānvas in the earlier part of the first century B.C. Later the Malwa region probably passed under the control of the rising power of the Deccan, the Sātavāhanas. Malwa was a strategic base for gaining control over the Deccan from the northern and western part of the country.[3] In the second century A.D. the Kṣatrapa powers of Western India and the Sātavāhanas fought against each other in order to maintain a hold on the area. Through this region also passed the Ujjain trade route from Northern and Eastern India to the western coast, which we first learn of from the *Jātakas*. The fertile lavaic Deccan plateau always lured its northern neighbours.

We have seen above the extinction of the Indo-Greek rule by the efforts of the Śakas, Pahlavas and Kuṣāṇas. The Śakas entered India chiefly owing to the renewed tribal movements in Central Asia. From the History of the Earlier Hans we learn that as a result of inter-tribal feuds in this region a large tribe called the Yüeh Chih, who was on the move westwards for a long time during the middle of the second century B.C. fell upon the Śakas near Tarim basin. This pressure enforced the latter to move and they made their way towards Chi-pin, a variable geographical term for the area covering parts of Afghanistan, N.W. Frontier Province, Kashmir and Swat Valley.[4]

We learn from the Chinese source that the diplomatic and commercial connections between China and Chi-pin continued, though often precariously, for a few generations after the Emperor

[1] *Ibid.*, pp.378-79.

[2] Chattopadhyaya, *Early History of North India*, p.22.

[3] Spate, *India and Pakisthan*, p.148; Panikkar, *Geographical Factors in Indian History*, p.40.

[4] Wylie, p.36.

Wu-ti (141-87 B.C.) took the initiative in establishing relations with the countries of Central and West Asia in the latter part of the second century B.C. following Chang kien's return from those areas. With the help of the Chinese a member of the royal family of Jung-ku (not identified) called Yin-mo-fu is said to have occupied Chi-pin during the reign of the Emperor Hsüanti (73-48 B.C.). The identity of Yin-mo-fu and other rulers of Chi-pin mentioned in the Chinese text is obscure because of the anomalous political situation of North-western India at this time. Some scholars think that they were of the Śaka (Sai-wang) stock.[1]

According to Rapson another batch of Śakas entered India through the Bolan Pass and settled in the Lower Indus Valley, or Indo-Scythia of the Greek geographers.[2] These Śakas are assumed to have lived in Parthia for some time which explains the presence of Iranian influence in the Śaka culture of India. However, these Śakas seem to have no immediate connections with the Śakas that entered Chi-pin.

With the entry of the Śakas in India we reach a fairly complicated phase of the political history of ancient India with a chronology which is very obscure and much disputed. Theories, mainly based on several groups of coins, a few inscriptions and some stray references in Chinese and classical literature are legion. It is not a part of our task to find a way out of this jungle of divergent views which are not of much significance for our purpose.

What relations the above-mentioned Śakas had with the Śakas of Taxila is not known. On numismatic grounds Maues is believed to be the earliest of the Śaka rulers of Taxila and he is identified with the King Moga of the Taxila Copper Plate of the year 78. By ascertaining the era to which this year may be referred we may obtain not only Maues's date but a fair idea of the length of the Śaka rule in North-western India. There are several possibilities, following which Maues may be placed between the late first century B.C. and the early first century A.D.[3] Whatever may have been the duration and the extent of the Śaka rule in this region, it was evidently not compact in character. Neither can we draw any distinct line or lines of succession of the Śakas

[1] *AIU*, p.122. The question of Chi-pin and its relations with China has been discussed in detail below. pp.159-60.

[2] *CHI*, I, pp.563-64.

[3] Chattopadhyaya, *The Śakas in India*, pp.16 (n.15), 17.

of Taxila nor is it possible to delimit satisfactorily the area over which they had direct and continued control. The assessment of the extent of the Śaka realm becomes complicated, mainly because of the administrative system they followed.

The Taxila Copper Plate of the year 78 refers to a *kṣatrapa* (satrap or governor) of Maues at Cukhsa or Chach, near Taxila. Several other inscriptions and coins suggest that the Śaka rulers appointed subordinate administrators with the titles of *kṣatrapa* and *mahā-kṣatrapa* in different parts of their realm. Ruling with the help of such subordinates was an old Iranian system of administration and the Achaemenids introduced this to their Indian territories a few centuries earlier.[1] The Mauryas had their viceroys in different parts of their empire, but it seems that they enjoyed less power than the kṣatrapas did, as the latter could issue their own coins which ran concurrently with the metropolitan issues.[2] However, the precise relations between a Śaka king and his kṣatrapas and mahākṣatrapas is not clear. It is not possible to determine the number of satrapies within the Śaka realm in North India. Put together they covered roughly the area comprising the N.W. Frontier Province, Punjab and Western U.P. up to Mathura. The satrapy of Mathura was an important one and it has been suggested that it held a strategic position from the time when the Sātavāhanas established themselves in Malwa.[3] We learn from the coins that sometimes two Śaka kṣatrapas jointly governed the same region as was apparently the case with the Śaka kings themselves.[4] We are not sure how far the allegiance of all the satrapies within this area went to the overlord at Taxila. The records of the kṣatrapas of Mathura, Rājuvula and Śoḍāsa mention no name of their overlord, and there are several similar cases.[5] In these cases it may be assumed that the title kṣatrapa was used even by those who were no more subordinate governors but were masters of themselves. The title of kṣatrapa was probably retained just as a matter of convention. In fact the whole matter of Śaka kings and their governors is based on such tenuous evidence that the conception of a vast and long-standing Śaka

[1] *Comp. HI.*, II, p.263.

[2] Allan (*BMC. Ancient India*, pp.XIX-LXXIV, especially LXI) has classified the Maurya punch marked coins on provincial basis but there is no evidence to suggest that different groups of these coins were issued by different authorities.

[3] Marshall, *Taxila*, I, p.55. [4] *AIU.*, pp.132-33. [5] *Ibid.*, p.135.

empire seems somewhat doubtful. Another important branch of Śaka kṣatrapas became prominent in Western India to which area we shall turn shortly.

On the evidence of the Takht-i-bahi inscription of the year 103 it is obvious that the Kabul Valley had passed under the domination of the Parthian (Pahlava of the Indian sources) King *Gondopharnes in or before the middle of the first century* A.D. The Parthian occupation of the region is also supported by the account of the Apollonius of Tyana. He visited Taxila in the middle of the first century A.D. when it was possessed by Phraotes, evidently a Parthian.[1] What made the Śakas lose the Kabul Valley is rather obscure. According to Marshall, the sudden deterioration of the coins of the Śaka King Azes II suggests some local catastrophe[2] and this may have given the Parthians an opportunity to occupy a part of the Śaka kingdom. Gondopharnes extended Parthian hold within India and probably it included Southern and Western Punjab and Sind.[3] A legend based on hagiological sources of some centuries later informs us of the conversion of Gondopharnes to Christianity by the Apostle St. Thomas but the historicity of this event is doubtful.[4] The Parthian domination of India did not last long. It seems from the evidence of coins that soon after Gondopharnes's death disintegration began. The internal trouble among the Parthians in India is indicated in the Periplus (38).

The economic significance of the Śaka-Parthian conflict over North-western India is not very apparent from our sources but it may be inferred from other circumstances. The region in question was commercially important from fairly early times. With the opening of the trade between China and the West presumably from the later part of the first century B.C. this importance gradually increased. Holding a covetable position over the main route of communication the Parthians benefitted themselves to the maximum. Part of the East-West trade went through North-west India also, especially after the improvement of maritime transport. We believe that this situation was at the root of the continuous conflict over this area for centuries. The history of the

[1] Philostratus, *The Life of Apollonius of Tyana*, II, Ch.26.

[2] Marshall, *op.cit.*, p.54.

[3] *Ibid.*, p.60.

[4] *Oxford History of India* (3rd. ed.) pp.145-46.

Kuṣāṇas, who ultimately supplanted the Śakas and the Parthians in this area, fully justifies this conclusion.[1]

We have noted above the occupation of Bactria by the Yüeh chihs. From the History of the Later Hans we learn how the chief of one of the Yüeh-chih clans called Kouei-Chouang (Kuṣāṇa) became the king of the whole tribe which migrated to Ta-hia (Bactria). The name of this chief is given as Kieou-tieou-kio, identified with Kujula Kadphises, whose coins have been found in Sirkap. According to the Chinese source Kujula's son, Yen-Kao-chen or Vima Kadphises was the conqueror of India.[2] With the Kadphises kings began the series of Kuṣāṇa rulers who hold a very important place in the history of ancient India and Central Asia.

The Kuṣāṇa empire covered a very wide area. At its climax it comprised the Oxus Valley, the Indus Valley and the Western Gangetic Valley, extending in the south up to the Malwa region. Unfortunately our sources tell us very little as to how such a vast empire was formed or how its administrative system functioned. Probably the Kuṣāṇas followed the old Iranian system but unlike Śaka Kṣatrapas their governors did not issue their own coins. Kuṣāṇa gold coins in significant quantities have been discovered from different parts of India and Central Asia. This situation no doubt reflects a flourishing economic condition which was mainly the result of heavy transit trade carried on for a long period through their realm. A few gold coins of the Kuṣāṇas by way of trade travelled as far as Abyssinia.

Perhaps no problem in the political history of North India in our period has been more puzzling than that of the chronology of the Kuṣāṇas. This important question centres round the date of the accession of Kaṇiṣka, the greatest of the Kuṣāṇa monarchs. After long controversy Kaṇiṣka's date is now held to be somewhere between A.D. 78 and 144.[3] Making Puruṣapura or Peshawar the centre of his power Kaṇiṣka extended and consolidated the Kuṣāṇa dominions in India and Central Asia. The annexation of some parts of the western provinces of China by the Kuṣāṇas which was possibly effected during the reign of Kaṇiska, is evident

[1] This question has been discussed fully in the section on Foreign Trade, pp.110f.

[2] Chattopadhyaya, *Early History of North India*, pp.71-72.

[3] *Cf. Report of SOAS Seminar.*

from the sudden silence over these areas in the Chinese *annals*. However, Kaṇiṣka's fame in India rests more on his devotion to Buddhism than on his military exploits. His name is connected with one of the great councils of that religion. But the queer assortment of deities of various creeds found on the coins of Kaṇiṣka and other Kuṣāṇa rulers baffles the student, who finds it difficult to detect the particular faith to which their loyalty was given. There may be some truth in the suggestion that to satisfy the traders belonging to diverse faiths who participated in the international trade carried on through Kuṣāṇa realm coins with different deities were issued.[1] The Kuṣāṇas were also keen patrons of art. Both the Gandhāra and Mathura schools of sculpture flourished during their rule. Now for the first time we see images of the Buddha in numerous forms, generally believed to be the result of foreign inspiration.[2]

On numismatic evidence it is obvious that up to the later part of the second century A.D. the Kuṣāṇa empire remained consolidated. We cannot read the situation properly after that. Perhaps internal dissension weakened the later Kuṣāṇas. But a more serious threat came from the neighbouring state of Iran which by this time had revived under the Sassanians. The richness of the Kuṣāṇa empire and the obstruction it created against the eastward expansion of the Sassanians seem to have provoked the latter to take action. Their successful venture is recorded in a Naqsh-i-Rustam inscription, according to which the new rulers of Iran annexed a considerable part of the Kuṣāṇa territories on both sides of the Hindu-Kush, by the middle of the third century A.D.[3] Inside India the subordinate rulers gradually asserted themselves.[4]

With the decline of the Kuṣāṇas North India entered into a long period of political obscurity. Of this time we know nothing but the existence of a number of petty states. Before considering them we should point out a notable feature of the Śaka-Pahlava-Kuṣāṇa rulers. This was their fondness for using grandiloquent titles such as *rājātirāja, sāhānusāhi, kaisara, devaputra,* etc. which now

[1] *JRAS*, 1912, pp.891f. (Kennedy, *The Secret of Kaṇiṣka*).

[2] *Oxford History of India* (3rd. Ed.) p.151.

[3] Ghirshman, *Iran*, p.292; Maricq and Honigmann, *Res Gestae Divi Sapores*, pp.11, 3-6.

[4] *AIU*, p.151.

further enriched the panegyric literature of India. Indian royalty had so far been happy with the plain title of *mahārāja*. One recent scholar has tried to explain the importing of these high-sounding modes of address by the foreign rulers as an attempt to conceal and remove their political weakness. He bases his view on the decentralised character of these realms.[1] But the use of these titles may signify nothing more than following the imperial practice of ancient Iran, Rome and China, the countries which inspired the Indian life of this period in so many ways.

If we go back to North India of the post-Maurya period we meet a situation resembling that of the north-western region of the country on the eve of Alexander's invasion.[2] Numerous states, the majority of which were quite small in size, covered the whole area. Some of them were monarchical, others republican in character. The little that we know about these states is derived from their coins, which are generally minted in the style of the Indo-Greek issues.[3] Coins are issued in order to declare a political entity as well as for economic reasons. We wonder how far the latter purpose was served by the currencies of so many small states. In any case there is no means by which we may know their economic position. During the first two centuries of the Christian era many of these states lost their identity within the Śaka and Kuṣāṇa realms. After the breaking up of the Kuṣāṇa empire North India again became politically a disintegrated area ruled by several indigenous dynasties and this phase continued up to the rise of the Guptas in the earlier part of the fourth century.[4]

However the existence of a foreign ruling house in Upper India in early third century A.D. is indicated by a Chinese text. According to this source there was a diplomatic exchange between a North Indian ruler with the title of *Men-loun* and the King Fan Chen of Fu-nan (Cambodia and a part of the South Viet Nam) in this time. *Men-loun* has been identified with *Murunda*, originally a Central Asian title later applied to a tribal people. On the evidence of a Jain text *Muruṇḍas* are supposed to have been living in Pāṭaliputra before the time of the Guptas. The Muruṇḍa king presented four Yüeh chih horses to the ruler of Fu-nan.[5]

The post-Mauryan history of Eastern India is very obscure.

[1] Sharma, *Aspects of Political Ideas and Institutions in Ancient India*, p.180.
[2] *PHAI*, pp.245f. [3] *AIU*, p.159. [4] *AIU*, pp.162f.
[5] Lévi, *Deux Peuples méconnus* (Mèmorial Sylvain Lévi) pp.235-43.

From the classical sources we can gather something about the commerce of Bengal. The Lower Gangetic Valley, with the big market town of Gange seems to have been a busy trading region.[1] A part of the Chinese silk export to the West passed through this area. A few Kuṣāṇa coins have been found in Bengal, Bihar and Orissa but possibly they have no political significance. In this region the only notable event known to us is the rise of Kaliṅga under the leadership of Khāravela in the latter half of the first century B.C. If the panegyrist of the Hāthigumphā inscription which reports this is to be believed it seems that the king of Kaliṅga led expeditions to different parts of Northern and Eastern India, far away from the seat of his power. There is no other evidence to support this tall claim but in the unsettled condition of that time it was possible for a powerful monarch to make some headway towards Northern and Eastern India.

The coastal region of Western India holds a very significant position in the history of our period. The improvement of maritime trade with the Western countries following the discovery of Hippalus and the establishment of peace in the Mediterranean area made the ports on the western coast of India fairly busy and their ownership desirable. We have seen above that all the foreign rulers who occupied North-western India in our period tried to extend their hold up to Lower Sind and, according to some scholars, a few of them came down as far as Kathiawad. But this claim is not very well supported. However, in the early centuries A.D. this region became the focus of two major political powers, the Sātavāhanas and the Śaka Kṣatrapas of Western ndia.

Some time in the first century B.C. the eastern Malwa region came into the possession of the Sātavāhanas, who supplanted the Kānvas, mentioned above.[2] The Sātavāhanas were a clan or a dynasty of the Andhras, an ancient and powerful people of the

[1] *History of Bengal*, I, pp.44-45. Ptolemy (VII. Ch.I) refers to Gange and places it to the south-east of Tamalites or Tamralipti. It has not yet been identified.

[2] Some scholars basing their arguments on the discrepancies of the Puraṇas believe that the Sātavāhanas came to power much earlier in the last quarter of the third century B.C. (*Comp. H.I.* II, pp.295f; *The Early History of the Deccan*, part II, pp.83f.). But this view cannot be supported on grounds of epigraphy (*MASI*, I, pp. 11-12).

Deccan.[1] The Sātavāhanas, however, had to accept the surveillance of the Mauryas and after the decline of the latter they asserted themselves and possibly extended their power over a wide area including a considerable part of Western India. The Hāthigumphā inscription refers to a "Sātakarṇi of the West" who seems to be an early Sātavāhana king with the same name. An inscription of the widow of King Sātakarṇi, found at Nanaghat, a pass in the Western Ghats, also supports the westward extension of the Sātavāhana rule.[2] Participating in the growing trade with the Mediterranean countries must have encouraged this movement.

On the evidence of other Sātavāhana inscriptions of Western India it seems that the coastal part of this region was controlled by a different power for a few decades after the rule of the above mentioned Sātakarṇi. One of the dynasties of the Śaka Kṣatrapas of Western India whom we know from their coins and inscriptions eliminated the Sātavāhanas for some time between the first and second centuries A.D.[3] These Śakas are known as the Kṣaharātas and possibly they had some connection with the Śakas of Taxila and Mathura.[4] Who were the overlords of these Kṣatrapas cannot be determined.

The political situation of the coastal region of Western India may also be known from the Periplus (41). Mambarus or Nambanus of this report, who was the ruler of Ariaca (the coastal areas around the Gulf of Cambay) has been identified with the Kṣaharāta ruler Nahapāna. The conflict between the Śakas and the Sātavāhanas to gain control over the coastal trade can also be inferred from this text. According to it ships were diverted from Calliene or Kalyan to Barygaza.[5] The ownership of Barygaza and other busy ports on the western coast allowed Nahapāna to control a substantial part of India's maritime trade with the Western countries. A large number of Nahapāna's silver coins bear testimony to the flourishing condition of his realm. If we take into account the areas, where most of Nahapāna's coins and numerous inscriptions of his son-in-law recording land grants to

[1] *IA*, XLVII (1918) p.70 (Bhandarkar, *Dekkan of the Sātavāhana period*).

[2] *ASWI*, V, p.60. [3] *IA. op. cit.*, p. 72.

[4] Chattopadhyaya, *The Śakas in India*, p.35.

[5] 52. It specifically mentions that Calliene which was previously under the elder Seragenas (earlier Sātavāhana?) was later occupied by the Sandaras (Chandana or Kuṣāṇa) in which case we have to assume that the Śakas were serving under a Kuṣāṇa overlord. (Renou and Filliozat, *L'Inde Classique*, I, p.242).

Buddhist monasteries have been found, and the places from which, according to the Nasik praśasti inscription, the Sātavāhana king Gautamīputra Sātakarṇi uprooted the Kṣaharātas,[1] it seems that the dominions of Nahapāna extended over a wide area, comprising northern Konkan, Gujerat, Malwa and a small part of south-west Rajasthan.[2] The discovery of a very large number of coins originally issued by Nahapāna and later restruck by Gautamīputra, and the Nasik inscription mentioned above, suggest that the Sātavāhanas gained their dominions in Western India either from Nahapāna himself or soon after his reign. However, the Sātavāhanas did not long enjoy their power over a wide area in this region. From Ptolemy's description as well as from the evidence of the Junagadh inscription, both sources belonging to the middle of the second century, it can be assumed that by that time the Sātavāhana hold of Western India was confined to Maharashtra only with Paithan as their capital, and the Malwa region passed under the control of another dynasty of western Śaka Kṣatrapas of which Caṣṭana (Tiastenes) was the founder. The Sātavāhanas continued to rule in Maharashtra almost up to the end of the second century when, according to the Purānas, the Ābhīras ousted them. Their dominions in the eastern Deccan survived much longer.[3]

The relations of the Śaka Kṣatrapas of Malwa, either with any outside power acting as their overlord or with the Kṣaharātas, cannot be definitely determined. It is, however, evident from names like Yasamotika (Caṣṭana's father) and Nahapāna, that both the Śaka dynasties of Western India were of foreign origin. The use of Kharoṣṭhī in some of their coin-legends suggests that these Śakas probably had some connections with North-western India.[4] Even from a liberal reading of the Junagadh inscription, where the Śaka ruler Rudradāman is the subject of the panegyrist's hyperbole, it is apparent that by A.D. 150 the Kṣatrapas of Malwa had not only recovered the whole of Gujerat from the Sātavāhanas but extended their dominions far to the north and east.[5] That these Śakas continued to rule beyond our period is evident from the different series of coins issued by a long chain of their rulers. We do not find reference to any significant political event in connection with them after

[1] *EI*, VIII, pp.60f.

[2] *BMC, Andhra*, pp.cx-xi.

[3] *IA*, pp. 153, 157.

[4] *BMC, Andhra*, pp.civ-cvii.

[5] *EI*, VIII, p.44.

Rudradāman except that by the end of the third century they may have temporarily accepted the vassalage of the Sassanids, as is suggested by the Paikuli inscription of Varharn III (A.D. 293).[1] This inscription makes mention of another Sassanid vassal in India, the Ābhīras. We have seen above that by the end of the second century the Sātavāhanas were succeeded by the Ābhīras in Maharashtra. The origin of these people is obscure. According to the Mahābhārata they belong to Aparānta which is the term for the western division of India, and in the narrower sense for northern Konkan. The Periplus (41) and Ptolemy (VII. Ch.1) locate *Aberia* or the Ābhīra country between the Lower Indus Valley and Kathiawad. The Periplus refers to this place as rich in cattle. It seems from an inscription and a few coins that there was some Ābhīra influence in certain parts of the Śaka dominions in the Malwa region, for a very limited period around the end of the second century. We thus have a quite disjointed picture of the Ābhīras who seemingly had different pockets of influence in Western India in the later part of our period and some of whom survived up to the middle of the fourth century.[2]

It is not possible to determine which of the major powers that dominated the political scene of Western India in the early centuries A.D., benefitted most from maritime trade with the Mediterranean countries. Barygaza or Broach, which remained under the Śaka Kṣatrapas during most of our period, was a very important and busy port no doubt, but considerable trade was carried through other ports such as *Calliene* (Kalyan), *Mandagora* (Bankot), *Palaepatmae* (Dabhal), *Malizigora* (Jaigadh) and *Byzantium* (Vizadrug)[3] which were situated within the Sātavāhana realm. These are now small fishing villages. Barygaza, however, had the advantage of being very near to Ujjain where caravan-routes converged from important trading centres of Upper India. In evaluating the gains from foreign trade made by the Śakas and Sātavāhanas there is another factor which may have some significance. The Śaka Kṣatrapas minted coins of silver along with those of base materials, whereas so far very few silver issues of the Sātavāhanas have been discovered, if the coins of Nahapāna which were later restruck by Gautamī-

[1] *JRAS*, 1933, p.219. [2] *Comp. HI* II, pp.331-33.

[3] That most of these ports were active for a long time is evident from their reference both in the Periplus (51, 53) and in Ptolemy (VII.Ch.1). See Schoff, pp.197, 201; McCrindle, *Ancient India as described by Ptolemy*, pp.55-57.

putra are excluded. Of course silver was a rare metal in early India and it is assumed that Roman denarii were melted down by rulers of Western India for the minting of their own coins.[1] But lead, which was profusely used for the Sātavāhana coinage, had also to be imported.

From the above review it is evident that for over 500 years after the fall of the Maurya Empire there was no particular region in Upper India which formed the nucleus of political power. Two regions, the north-west and the coastal part of the west, obtained much political importance mainly because of trade with foreign lands. But these places never became seats of any centripetal power. In our period there is no evidence of any attempt by an indigenous power of North India to expand towards the north-western border and conversely the hold of the foreign rulers inside the heart of the country was never very tight. In the Deccan the Sātavāhanas proved themselves to be the only exception. However, a consolidation force began to gather momentum soon after the end of our period in the form of the Guptas, who were to establish a new empire which was to raise the social and economic condition of North India to a height possibly never reached before.

[1] Warmington, *The Commerce between the Roman Empire and India*, p.289.

CHAPTER I

# LAND

## OWNERSHIP

FROM the literature and epigraphic records of the period under discussion it is evident that the concept of private ownership of land has been established in different parts of Northern and Western India by that time. The passages, such as *Sthāṇucchedasya kedāraṁ āhuḥ śalyavāto mṛgam* (a field to belong to him who cleared away the timber and a deer to him who first wounded it with an arrow)[1] and *koci puriso vanam sodhivā bhūmi mniharati tassa sā bhumiti jano voharati* (when a person clears the jungle, people say, it is his),[2] and the instances as recorded in one of the Nasik caves where a bequest of a privately owned field is made for the benefit of ascetics,[3] tend to support the above views. Compared to the land system presented in the *Arthaśāstra* and the account of Megasthenes where we find a rigid control over the entire land and state agriculture the situation is somewhat different in our period. Indeed the land system of our period does not seem to have been a new or recently initiated practice. For right back to the time of the Ṛg Veda we see the idea of private property fairly developed. Even in that period arable and homestead land belonged either to an individual or to a family. Pasturage was perhaps common.[4] It seems that the imperial cause needed governmental participation in different productive factors of the country and this situation forced the Maurya rulers to supervise land and its produces.

The situation was similar in the West, where in the Hellenistic period the king became more or less the owner of the whole State. In Ptolemaic Egypt there was royal prerogative over all factors of production. Of course administrative control over land has always prevailed in India since the time of the Buddha in some form or other. Individual or family, communal and royal ownership of land seems to have gone hand in hand for a

[1] *Manu*, IX. 44. [2] *Milinda*, IV. 5.15. [3] *EI*, VIII. p. 77

[4] Ghoshal, *Agrarian System in Ancient India*, p. 2

long time. Not only were there different systems in different regions, as we know from diverse sources, but sometimes the same source points to dissimilar systems working together at about the same time and place. This does not allow us to obtain a distinct picture of the true state of affairs.

A relevant enquiry may be made here as to whether at that time the idea of distinction between possession and ownership had developed. For the passages quoted above suggest mere acquisition or possession. If we turn to earlier sources it becomes obvious that the concept of ownership of movables and immovables was known to the brahmanical law-givers before our time. From a fairly early period we find a distinction in terminology as regards ownership and restricted real right. The former is connected with the word '*sva*' (self) while words based on the root '*bhuj*' (to enjoy) are used to indicate mere possession.[1] One of the law-givers of our period makes the distinction explicit by stating that to prove ownership enjoyment must be accompanied by title.[2] The passages from *Manu* and the *Milindapañha* prove that bringing virgin land under cultivation was still going on at that time and this was perhaps the first stage of acquiring ownership. It is also possible that the smṛtikāras advocated conferring ownership on the individuals who took the trouble to clear the forest in order to give an impetus to the extension of arable land.[3] This view could be supported from *Manu's* precept (X. 114) that acceptance of an untilled forest is less blamable than that of a tilled one for a *brāhmaṇ*.

Power of gift, sale and mortgage is the ultimate test of ownership according to all developed schools of law. Not only does the legal literature attribute the right of alienation of land to individuals but there are quite a number of inscriptions recording gift of land by crown, community and private individual. The *Artha-śāstra* prescribes an order of priority of choosing buyers—kinsmen, neighbours and rich persons—when a piece of land is sold.[4]

All the inscriptions mentioned above have been found in

[1] Jolly—*Recht and Sitte* (Eng. tr.) p. 196.
Ghoshal, *op. cit.*, pp. 82-85.

[2] *Yāj*, II. 29.

[3] *JBORS*, XLIV (1958) p. 225. (Sharma, *A Survey of Land System in India from c. 200* B.C.—A.D. *650*).

[4] Bk. *III*, Ch. 9.

western India. They are votive in nature, recording gifts of land, mostly by members of royal households. We meet very few lay individual donors. These records give some idea about the land system prevailing in that part of the country. The size of plots donated varies widely. At Junnar we read of a gift of 15 *nivartanas* of land[1] while Nasik cave inscriptions record the gift of fields of 100 and 200 *nivartanas*.[2] Sometimes a whole village was dedicated.[3] The general practice was to donate near-by caves to one or other of the Buddhist sects, and to these gifts were appended villages or agricultural plots for the maintenance of the monks staying there.

We find only one example of buying of land and one of exchange of land from these Western Indian inscriptions. A field was bought by Uṣavadāta, son-in-law of the King Nahapāna for 40,000 *kāhā panas* for donation to a monastery.[4] The exchange also had a similar purpose.[5] As there is no record of transfer of land for non-religious purposes the question arises whether the scope of ownership was limited in Western India during our period.[6] But even in later times when the right of individual ownership can hardly be doubted we find very few, if any, records of transfer of land for secular purposes. Perhaps the ownership of land in our period was not appreciably limited. The legal process of land

[1] Ins. no. 9.

[2] Ins. no. 4, 5.

[3] Ins. nos. 3, 5, 10, 14. On the basis of Bhaṭṭasvāmin's commentary of the *Artha*,

1 nivartana becomes equal to 120 cubits sq.

In Bk. II, Ch. 20 of the *Artha* it is stated that,

10 *daṇḍas* = 1 *rajju*

3 *rajjus* = 1 *nivartana*

According to Bhaṭṭasvāmin 1 *daṇḍa*=4 *hastas* or cubits and nivartana is used in measuring squares. Therefore

1 *nivartana*=4×10×3 or 120 cubits sq.

It is obvious that 120 cubits sq. and not 120 sq. cubits are implied, as the latter is too small an area to comprise a viable unit of agricultural land.

[4] Nasik, Ins. No. 10. The amount is equal to Rs. 1500, according to Altekar (*Proceedings of Indian History Congress*, 1951, p. 27).

[5] *Ibid*. No. 5.

[6] *JBORS*, *op. cit*. pp. 225-26.

Though ostensibly religious, it seems that these grants were also meant to ensure that land should be cultivated. One of the Nasik inscriptions (No. 5) specifically states that if land is not cultivated the village is not settled.

transfer has been adequately treated in a law book of the period, the *Viṣṇu-Smṛti*.[1]

From the inscriptions of Western India it is evident that small pieces of land of 2, 3, 4, 8, 9, 12, 20, 26 *nivartanas* were owned by ordinary individuals,[2] and this suggests that a ryotwary system of land holding prevailed in Western India.[3] We have not found any mention of intermediaries from these records. In this connection it would be interesting to know what was the position of th monasteries which through generous gifts, became owners o vast landed property. Did they cultivate their estates or wer they acting as intermediaries ?

In one of the Nasik inscriptions to which we have alread referred, we find that a new grant is made to the ascetics of th Triraśmi hills, after the formerly granted village and the adjoinin village up the hill have been found uninhabited and uncultivated. If it was the practice of the monasteries to employ paid labourer to cultivate their landed property, there is no reason why th property in question should remain unused. But with the help o a single example we cannot come to any satisfactory conclusion The nature of these land grants and the duration of their tenur are rather obscure. Some of them were accompanied by variou kinds of immunities. They were invariably exempted from payin any revenue but a few of these grants indicate that they constitute something more than rent free (*brahmadeya*) land. One of th inscriptions of Karle records the gift of a village with its taxe ordinary and extraordinary, with its income fixed or proportional. Quite a few Nasik inscriptions record immunities which virtuall transfer to donees administrative and perhaps also judicial func tions. We learn from the inscription no 3. that the king grant to the donated village "the immunity belonging to monk's lan making it not to be entered (by royal officers), not to be touche (by any one of them), not to be dug for salt, not to be interfere with by district police, (in short) to enjoy all kinds of immunities." There is more than one inscription of this nature. Obviousl

[1] III. 81-83.

[2] *Archaeological Survey of Western India*, IV. pp. 96-97.

[3] *Proceedings of Indian History Congress*, 1951, p. 26.

[4] Nasik Ins. No. 5.

[5] *Archaeological Survey of Western India*, IV, pp. 107-108.

[6] *EI*, VIII, p. 67.

such immunities are much more than those granted with the usual gifts of land for religious purposes where we find the term *bhikkhuhala-parihāra* in Sātavāhana inscriptions. So the position of the donees was considerably different from ordinary non-paying intermediaries. We are not sure whether hired labourers were employed in these granted fields or they were let out to sub-tenants.

Whether the tenure of these land grants was perpetual or otherwise, is also not clear. It has been suggested that though such endowments were always looked upon as occupying a privileged position, they were neither perpetual nor irrevocable in practice.[1] We have already seen that in one instance the king exchanged one village for another as the previous gift was not utilised. One of the Nasik inscriptions (No. 3) records that the king is giving away land according to the custom of *akṣayanīvī*, an odd term in the revenue terminology of ancient India. It has been variously explained as signifying perpetual enjoyment without the right of alienation[2] or a perpetual endowment of rent-free land.[3] However, it is difficult to assess the real status of these monasteries which with increasing endowments of lands and other kinds of property, no doubt became considerably important in the economy of Western India.

We know almost nothing about the land system in Northern India from historical records, except that the *akṣayanīvī* system of land tenure was prevalent under the Kuṣāṇas also.[4] From Northern Indian irrigation methods which consisted mainly of tanks and wells and not of canals, it can be inferred that plots of land were comparatively small in size.[5]

Scholars have discussed at length the question as to whether in ancient India the ownership of land amounted only to occupancy right subject to the king's pleasure or whether it existed in the ordinary sense of the word, but they have not come to any satisfactory conclusion. Without going into the whole problem again, which is rather beyond our scope, we would state very briefly the opinion of the authorities of our period on this issue. In a passage in the *Milindapañha* it is clearly stated that all towns,

[1] Ghoshal, *op.cit.*, p. 36 [2] *loc. cit.*

[3] *JBORS*, *op.cit.*, p. 227. This term implies right of enjoyment with some limitation, the range of which there is no means to determine.

[4] *Select Inscriptions*, p. 146.

[5] *JBORS*, *op.cit.*, p. 228.

ports, mines, etc. which are situated on the earth are under the ownership of the king.[1] *Manu* (VIII. 39) agrees with this view by stating that the king is the overlord (*adhipati*) of the soil. We do not agree with the view that the theory of overlordship conflicts with *Manu's* previously mentioned precept that the ownership goes to the first cleaner.[2] The ownership of land by private individual has never been an absolute right. The state has always the last say in this matter whatever may have been the position in theory.[3]

## Revenue

Rulers have always derived their sustenance and financial support either from the people in their own territories or from new conquests. In the *Ṛg Veda* the word *bali* was used in both senses—revenue derived from the subjects[4] and tributes gained from conquered countries.[5] The methods by which support from the people in the form of revenue is obtained have usually been adopted according to the prevailing economic and political circumstances and the current objectives of the government.

*Bali* or revenue in the early Indo-Aryan society consisted of a share of the agricultural produce and of the cattle. Scholars have observed among certain Indian tribes who are held as the remnants of very ancient tribal peoples a peculiar method of giving the ruling chief his income. A portion of land in each village is allotted to the chief. The chief's farm is cultivated either by slaves or by some special arrangement. Such farms are

[1] p.359.

[2] Ghoshal (*A History of Indian Political Ideas*, p. 175) thinks that financial necessity made the king adopt the theory of overlordship. This may be true but both the views of *Manu* are quite compatible.

[3] *CHI* I, p. 475; Jayaswal, *Hindu Polity*, II, pp. 174 f.; Ghoshal, *op.cit.* passim; Kane, *History of Dharmaśāstras*, V II. Pt. 2. pp. 867-68. Crown land is a different issue. We refer here to land in general.

[4] X. 173, 6.

[5] VII. 6, 5. *Bali* lost this simple connotation in course of time. In the *Arthaśāstra* we find that this term was used for an additional cess whereas for general land revenue, i.e. king's grain share the term *bhāga* was used. But from the legal literature of our period, it seems that *bali* regained its old sense to some extent denoting the king's grain share. (Gopal, *Mauryan Public Finance*, pp.116-18; Ghoshal, *op.cit.*, p 58).

still to be found.[1] It is interesting that in the Homeric period the Greeks used to present to the king a royal estate called *temenos* meaning 'cut off' from the public lands. This particular estate was something different from the private property of the ruler.[2] In early Indian literature we find no evidence of similar presents to the rulers.

It is generally held that revenue grew out of voluntary contributions.[3] How far these contributions were in fact voluntary, it is difficult to decide. For we have no idea as to what happened to the man who ceased to contribute. However, the term *bali* etymologically means both offerings to the gods and voluntary contributions. Whatever may be the original form of *bali*, it soon turned into a compulsory payment.[4] With the passage of time these real or so called freely given contributions were transferred into legal obligations in most societies. Later Vedic literature testifies to this generalisation. Already in the *Atharva Veda* we find that the *bali* has begun to be regarded as compulsory contributions.

A few Vedic terms, such as *saṁgrahitṛ* and *bhāgadugha* may have some connotation concerning revenue collection. On that basis it has been claimed that an organised revenue system was gradually taking shape with the gradual extension of cultivation and settlement of people in different areas.[5] But from a close study of the use of these words in different parts of the Vedic literature it has been suggested that *saṁgahitṛ* and *bhāgadugha* mean chariot driver and server of food respectively.[6] Moreover, the Vedic political structure, as it seems, does not allow much possibility of the growth of a sound revenue machinery. In Kauṭilya for the first time we meet a meticulously laid out plan of the administration of revenue and treasure. Of course such an elaborate system did not evolve overnight. From the precepts

[1] Baden-Powell, *Land Revenue in British India*, p. 34.

[2] Andreades, A.M., *A History of Greek Public Finance* (Eng. tr. by Brown, C.N.) I, p. 15.

[3] "In all primitive societies voluntary offering constitutes the first item of contributions and every man feels the necessity of upholding the political and military organisation by his own personal efforts." (Seligman, *Essays in Taxation*, p.2).

[4] Ghoshal, *Hindu Revenue System*, p. 4.

[5] Ghoshal, *op.cit.*, pp.9-10.

[6] Rau, W., *Staat und Gesellschaft im Alter Indichen*, pp. 110-11 with notes.

of earlier law-givers, Baudhāyaṇa, Gautama and Vāśiṣṭha, we learn something about the land and revenue affairs of the pre-Maurya period, but the line of growth of fiscal ideas from early times to Kauṭilya is not very distinct.

On the grounds of the considerable similarity between the land and revenue policies advocated in the *Arthaśāstra* of Kauṭilya and corroborated by Megasthenes and the system practised in Ptolemaic Egypt of the third and second centuries B.C. it is held that Kauṭilya was much influenced by foreign ideas.[1] In fact Megasthenes himself writes about the similarity between the Indian and Egyptian systems regarding land. Whatever may be the guiding factors of the *Arthaśāstra* of Kauṭilya, the legal literature of our period has considerable affinity with the precepts advocated by the former text.

It is apparent that the theory that the king was entitled to receive revenue from the subject in return for his protection went deep into the economic thinking of India long before our period. Earlier law-givers all specifically mention this reason while discussing the amount of revenue the ruler should receive from his people.[2] The sources of our period are very clear on this point. It seems that Manu's theory of overlordship does not form a sufficient basis for the king to demand revenue from the users of the soil. More than once he declares the king's duty of protection. By reason of protection the king is entitled to half of treasure-troves and minerals.[3] It seems that Manu does not mind the king collecting more than the legal tax if he protects his subjects to the best of his ability. Usually one-sixth of the crops is his due, but he does not become guilty by charging one-fourth in time of distress provided he does his duty well.[4] On the other hand the king who receives land revenue, duties, fines, etc. but fails to protect his people takes upon himself all the foulness of his whole people and makes his way to hell clear.[5]

Yājñavalkya too is very emphatic on this point. He says that by protecting his subjects with justice the king receives one-sixth of their merit; but if, being unprotected, the subjects commit

[1] Breloer, *Kauṭilya Studien*, I, pp. 178 f.
[2] *Gautama*, X. 27; *Vāsiṣṭha*, I. 42; *Baudhāyana*, I, 10. 18.1.
[3] *Manu*, VIII. 39.
[4] *Manu*, X. 118-19.
[5] VII. 144; VIII. 307-308; IX. 254.

any sin the king will share half of its guilt. Protection is superior to any other gift the king can bestow. But *Yājñavalkya* does not stop here, and passes on the burden of protection even to a conqueror, on whom devolves the full responsibility of protecting his new subjects immediately after he becomes master of another country. Customs, laws and family usages of a country should be preserved after its acquisition.[1] *Viṣṇu* also supports this proposition of protection.[2]

We find a passage in the *Mahābhārata* describing a quasi-anarchical state in which the people look for a strong person to give them protection from all their troubles, in return for which they promise him men, money and materials. They are ready to offer him ten per cent of their crops, two per cent of their livestock and precious metals, their most beautiful daughters, and smart and efficient youths for his army.[3] Here we have a recollection of a primitive stage of government which our period must have passed in most parts of the country. But this tradition establishes the proposition firmly that revenue and other helps were given to the ruler on condition that he would protect the subjects from all kinds of dangers and difficulties.

The same view on revenue in return for protection is also repeated by later law-givers and commentators. It is obvious that the *smṛtikāras* were well aware of the duties of the ruler who had to depend upon the products of the labour of his subjects. This latent agreement between the ruler and the ruled in early India is looked upon as a good example of the theory of orginal social contract that the ruler is to maintain the public order and the people contribute to his support.[4]

From the *Arthaśāstra* it is apparent that a systematic survey of all land was carried out by the state before the assessment of revenue, and this fact is corroborated by Strabo.[5] The village officer grouped different plots as cultivated, fallow, plain, wet, garden, vegetable garden, boundary, etc. and villages were classified by the revenue collector as best (*jyeṣṭha*), medium (*madhyama*) and low (*kaniṣṭha*).[6] We cannot elicit evidence of this type of survey from the legal literature of our period. But as different rates of revenue are often mentioned by the same authority

[1] *Yāj,* I. 334-37 and 341-43.
[2] III. 1.
[3] XII. 63. 33 ff.
[4] Ghoshal, *op. cit.* p. 18.
[5] XV. 1. 50.
[6] II. Ch. 35.

it may be inferred that variation was based on the quality of land. In fact the early Indian sources on polity, in spite of their detailed discussion of the subject of revenue, leave us in confusion as to the exact amount of revenue sanctioned by them. Of course rates of revenue must necessarily be flexible and increment of the rate is unavoidable in time of need. But it is difficult to establish the general rate in normal times from the *smṛtis*. In *Manu* we find that the king can take as annual revenue 1/6, 1/8 or 1/12 part of the crops, but he should draw little by little as the leech, the bee and the calf do.[1] But in what circumstances which of these three rates was applied is not stated. We believe one of the grounds of differentiation was the type of land under cultivation. Perhaps a thorough survey of land such as we find described in the *Arthaśāstra*, which is possible in a centralised state like that of the Mauryas could not be carried out in the various smaller states of our period, yet the law-givers could not neglect the important aspect of revenue assessment according to the yield. The claim that this differentiation involved an advanced method of assessment may be true,[2] but from a comparative study of different sources it seems that in ancient India 1/6 of the crops remained the revenue in principle for a long time, though this was not always followed.[3] Almost all the sources, whether anterior to our times, contemporary or later, refer to this rate in some place or other, and the king is often addressed as *ṣaḍ-bhāgin*, one who takes 1/6 part of the yield.[4]

As we have no inscriptional evidence[5] to corroborate the information gathered from the legal literature, it is not possible to infer what the rates of revenue in different parts of India

[1] VII. 129-30. cf. *Mahā*, XII. 87. 20-21, 88. 4-8.

[2] Ghoshal, *op. cit.* p. 58.

[3] Gopal (*op.cit.* p. 69) has suggested that 1/6 was the basic land tax and there were certain other cesses. This may be true according to the *Arthaśāstra* in which *bhāga* and *bali* are distinctly divided as king's grain-share and additional cess respectively. But in our period the term *bali* covered the grain-share also (Ghoshal, *op.cit.* p. 58). So when it is stated *bali* is 1/4, 1/8 or 1/12 we cannot distinguish the grain-share or basic land tax from the additional cess. Bose (*Social and Rural Economy of Northern India*, 1, p. 119.) has drawn a similarity between the traditional rate of 1/6 and the tithe in Europe.

[4] *Baudhāyana*, 1.10; 18.1; *Vās*, 1.42; *Gautama*, X. 24; *Artha*, II. Ch. 15; *Mahā*, XII. 60. 25, 71.10; *Viṣṇu*, III.22.

[5] All the Western Indian inscriptions referred above are donative, describing the transfer of rent-free land.

actually were. We have no reason to think that there was any uniform rate throughout the country. In any case, 1/6 itself is quite a high rate. In this connection another important question is whether the assessment was on the gross produce or on the profit. It is held that in those days of primeval simplicity whatever the land produced was collected on the threshing floor and revenue officers used to supervise its division in kind.[1] But this view is not always true. In the *Mahābhārata* it is stated that taxes should be levied not on gross income but after examining the peasants' income and expenditure.[2] This view is also shared by other sources which declare that the royal share is to be estimated on the increase upon the capital employed.[3] Considering the careful gradation of land, survey and measurement as prescribed by the *Arthaśāstra*, the total output and the profit gained could be calculated without much difficulty. The legal literature of our period is not sufficiently systematic for us to be very definite. However, there are some categorical references in the epics and the *smṛtis* to the effect that revenue is levied on grain,[4] probably meaning gross produce. This variation in the system of assessment seems to have depended upon the nature and efficiency of the administration of different states.

The king's income from mines, forests and herd seems to have been considerable. According to the *Arthaśāstra* (II. Ch.12) mines were under the full control of the State.[5] The law-givers of our period are rather divided on this point. While *Manu* (VIII. 39) prescribes that the king should obtain one half of the metals produce in his realm, *Viṣṇu* (III. 55) declares the total output of mines as the royal due. One of the inscriptions of Western India makes it apparent that digging salt was a royal monopoly,[6] but whether the same principle applied to other minerals, is not known from this group of sources.

That the king was conscious of his right over forest products from a very early period is evident from a precept of Vāsiṣṭha (XIX. 24-27), who asks that persons earning a living from forests should pay something to the king. The *Arthaśāstra* laid considera-

[1] Baden-Powell, *Land Revenue in British India*, p. 35. The author here refers to ancient Indian conditions in general.

[2] XII. 120. 9.

[3] *Manu*, VII. 130.

[4] *Mahā.*, XII. 119. 17.

[5] Ghoshal, *op.cit.* p. 107.

[6] *ASWI.* IV. p. 105.

ble stress on forest economy and there we find threefold classification of forests as game forest, produce forest and elephant forest (II. Ch. 6). The authorities of our period also attached great importance to forests and decried any misuse of them by cutting wood or applying fire unnecessarily.[1] From *Manu* (VII. 131-32) and *Viṣṇu* (III. 25) it is evident that of the various forest products, such as honey, wood, medicinal herbs, leaves, grass, flowers and fruits 1/6 of their amount was paid to the king.

The maintenance of herds was no less important than farming. According to *Manu* (IX. 326-27), tending cattle was compulsory for the vaiśya and the same view is expressed in the epics (*Mahā.* II. 5. 79, XII. 60. 22-25). This regulation seems hardly to have applied in our period, and was no doubt taken over from much earlier times; but its presence in *Manu* indicates the importance attributed to cattle-rearing. The law givers fixed 1/50 of the cattle as the king's share (*Manu*, VII. 130; *Viṣṇu*, III. 25). It seems that the king's due was 2% of the whole herd and not of the annual increase in the cattle property—considering the rate of land revenue the charge on herds sounds reasonable. It may be mentioned here that cattle breeding on a large scale in Aberia, a part of Sind inhabited by a pastoral people called the Ābhira, has been noted in the Periplus (41). It (14) also refers to the export of butter from Ariaca (the region around the Gulf of Cambay) to East Africa.

Apart from regular revenues from agriculture, forests, mines and herds there have always been various additional imports. *Manu* refers to *kara* and *pratibhāga* among others.[2] The precise scope of these terms is not clear and the numerous later commentaries have made the confusion further complicated. *Kara* was probably a periodical tax, primarily upon agricultural land, over and above the king's normal grain share.[3] *Pratibhāga* seems to have been daily presents consisting of fruits, flowers, roots and the like.[4] (In the Junagadh Rock inscription we find such terms as *kara*, *viṣṭi* and *praṇaya*) These were not necessarily connected with the land, but from the context it seems that these

[1] *Manu*, XI. 65; *Viṣṇu*, V. 55-59; *Mahā.*, XII. 32.14.

[2] VIII. 307.

[3] Ghoshal, *op.cit.* p. 65.

[4] *loc. cit.*

were various irregular oppressive taxes that the people had to suffer occasionally.[1]

It seems that ancient Indian law-givers allowed rulers to extort money under many pretexts, but asked them not to forget that in levying taxes the subjects should not be robbed of their due rewards.[2] It has been suggested that the evolution of the Indian revenue system is a reflex of the growth of the king's powers and functions and the consequent demands on the people's purse.[3] We do not know how far this power was judiciously utilised, but it seems that the rulers never lacked legal sanction for all their exactions, provided the subjects were not weakened economically.

We cannot look to our sources for a comprehensive account of the system of revenue administration of the period under discussion. We merely hear from them a few commonplace and pious instructions addressed to the king. Both *Manu* (VIII. 419) and *Yājñavalkya* ask the king to maintain a regular personal inspection over the receipts and disbursements of the state. The king, according to our law-givers, should be very careful about selecting his officials (*adhyakṣa*) in the revenue department. He should look for people who are from noble families having served the royalty for generations, honest, competent, clever, experienced, firm and well able to collect money.[4] It is specifically mentioned that for revenue, mine, state factory and storehouse the brave and skilful should be employed while the timid may be left for work in the interior palace.[5]

We do not know what was the hierarchical order of the revenue officials except that the groups of 1, 10, 20, 100 and 1000 villages were administered by lords of different categories, one under the next. These officers were perhaps responsible for the general administration of the villages under them including the collection of revenue and their pay was in this order:

| | |
|---|---|
| lord of 1 village | —the king's daily dues of food, drink and fuel |
| lord of 10 villages | —1 *kula* |

[1] *Viṣṭi* is unpaid labour and *praṇaya* according to the *Arthaśāstra* (V. Ch. 2) is an emergency levy when the State suddenly runs into financial stringency.

[2] *Manu*, VII. 128.

[3] Bose, *op.cit.* p. 125.

[4] *Manu*, VII. 54, 60; *Yāj*, I. 311.

[5] *Manu*, VII. 62.

lord of 20 villages—5 *kulas*
lord of 100 villages—revenue of 1 village
lord of 1000 villages—revenue of 1 town.[1]

The incomes of these grades of officials rose steeply as the responsibility increased, if we take *Manu's* instructions literally. Thus the lord of 20 villages receives five times the income of the lord of ten. The *kula* referred to is undefined and is presumably an area of land, though sufficient to maintain a family. There is no means of assessing the amount of these incomes in concrete terms for the details are so vague and the inscriptions of the period do not tell us anything in this connection.

## Irrigation

In the *Arthaśāstra* we find that one of the tasks of the superintendent of agriculture was to look after the irrigation system of the country.[2] The State supervision of this important aspect of agriculture was not much in evidence in our period. Although a few rulers, such as Khāravela of Kaliṅga[3] and Rudradāman of Saurastra[4] *took interest in repairing and improving old tanks* and lakes, the initiative in this matter seems to have been left in private hands.

That the importance of irrigation was fully recognised becomes obvious from the contemporary law books, and to a certain extent this is supported by the archaeological evidence. *Manu* (VIII. 248) prescribes that tanks, wells, cisterns and fountains should be built where boundaries meet. Perhaps the idea was that these water reservoirs would not only form boundaries but would also supply water for irrigation to the adjacent plots of land.[5] From the same source we also learn that causing any harm to these water reservoirs was looked upon as a highly anti-social act. Capital punishment is prescribed for breaking a dam, and if the offender agrees to repair the damage, imposition of a very high

[1] *Manu*, VII. 115-19; *Mahā.*, XII. 87. 3-5.
[2] II. Ch. XXIV.
[3] *IHQ*, XIV (1938) pp. 477 f, EI, XX. pp. 71-89.
[4] *EI*, VIII, pp. 36-49.
[5] *PIHC*. 1957, (Sharma, R.S., *Irrigation in Northern India during the post-Maurya period*).

fine is recommended.[1] Unauthorised use of these water reservoirs is also prohibited (*Manu*, IX. 281). This strict attitude of the law-givers reflects the fact that the purpose of irrigation in an agricultural economy was properly appreciated.

Archaeological evidence of irrigational works which may be attributed to our period has been found mostly in the western and northern parts of the country. The inscription of Junagadh in Saurastra records the repairing of a vast lake Sudarśana during the rule of the Śaka king Rudradāman. This lake was originally dug by the regional administrators of the Mauryas who provided it with high and strong embankments. A large breach in the embankments was caused by the flood water of two adjoining rivers. Rudradāman made the embankments stronger, bigger and more beautiful. It seems that this major public work which cost the king a heavy amount of money was done without imposing any additional tax on the subjects. However, the repair work was too big and part of it had to be left unfinished. As the people started to lament over this, one of the ministers completed it. There is further evidence of digging a tank in this area for the public benefit. This was done in the later part of the second century A.D. by Rudrabhūti, a general of Rudrasiṁha the Śaka king of Ujjain in a village in Kathiawad.[2] It seems that this dry part of Western India was fortunate enough to receive regular attention from the rulers from the time of the Mauryas onwards. The economic importance of this place was, however, due to the vigorous overseas trade of the region, which no doubt indirectly stimulated the local agriculture and thus encouraged the development of irrigation.

Further south, a few water reservoirs were built by Uṣavadāta, the relation of the Śaka king Nahapāna.[3] When the later Sātavāhanas were ruling this area, quite a few cisterns were bequeathed by lay devotees, but it does not seem that these were in any way helpful to agriculture.

Excavations in Northern India have brought to light the fact that many water-reservoirs of small size were dug in various parts of this region during the first two centuries of the Christian era,[4]

[1] *Manu*. IX. 279; *Viṣṇu*, V. 15.
[2] Sirkar, *Select Inscriptions*, i, 176, II. 2-5.
[3] Sirkar, *Select Inscriptions*, i, 176, 1.5.
[4] Marshall, *Taxila*, i, p. 155.

local measure was taken, the charge for that could have been included easily in one of the many irregular exactions.

## AGRICULTURE AND AGRICULTURISTS

Agriculture has all along been the chief occupation of the people of India. The passages from the *Milindapañha* and *Manu* regarding gaining ownership of the land by clearing away the jungle, quoted in the beginning of the chapter, may suggest that agricultural settlement on virgin land was gradually growing. The large number of land grants of Western India were possibly also meant to induce further cultivation of land. It is natural that in an agricultural economy negligence and carelessness on the part of the cultivators were highly resented. This is evident from the contemporary legal texts, one of which prescribes a fine amounting to ten times the revenue for a cultivator not cultivating his field at the proper time or allowing the crops to be eaten up.[1] However, it is by no means possible to estimate the extent of agricultural settlement in our period.

From numerous sources, indigenous and foreign, we get a fair idea of the varieties of India's agricultural products. Due to earlier political relations and closer commercial connections in our period with Western countries a few Graeco-Roman writers were well conversant with the agricultural condition of India. Of them Theophrastus and Pliny are the most notable.[2] From the *Ch'ien Han Shu* (the History of the Former Han Dynasty) we get a list of agricultural products of North-west India.[3] The Periplus (14) refers to the export of food materials, such as rice, wheat, ghee, sesamum oil from Ariaca to East Africa. Without, entering into a detailed discussion of the regular field products we shall try to draw a few broad conclusions. It is obvious that there was a large variety of agricultural products and a considerable number of them were sent abroad, though we do not share the view that all the articles mentioned by Theophrastus and

[1] *Manu*, VIII. 243.

[2] Later, in the section on Foreign Trade (p. 143) we have given the list of agricultural products known to Theophrastus (3rd cent. B.C.) and Pliny (1st cent. A.D.).

[3] Wylie, pp. 33-34. The following articles are mentioned here 5 grains—rice wheat, pulse, millet, hemp, grape and various other fruits, sandal wood, bamboo, etc.

other foreign sources were actually exported.[1] These exports, however, suggest that the country was producing varied articles, such as cereals, lentils, fruits, oil seeds and spices in greater quantity than was necessary for its own consumption. We shall see later that textiles formed one of the major items of the Indian exports in our period.[2] It is obvious that cash crops, especially cotton, were widely grown.

Through commerce India established relations with many countries in Asia, Africa and Europe and as a consequence of this, we should expect that a few foreign plants were introduced to this country and they eventually enriched the Indian Flora. From Hiuen Tsiang's travel account we learn of the importing of the peach (*cinani*) and the pear (*cinarājaputra*) from China during the reign of Kaṇiṣka.[3] But such useful references are not many. Regular rainfall is essential for an agriculturally rich country. At the present time there are two regular rainy seasons, the north-east monsoon from December to March and the south-west monsoon from June to September.[4] Megasthenes also reported "a double rainfall in the course of each year."[5] But the *Milinda-pañha* (114) tells of three regular rains annually, besides a few occasional ones. The first part of this statement is undoubtedly wrong. In the last two thousand years no major change in geographical factors of India has occurred to affect the regularity in rainfall. There is no examples of such a drastic climatic change in any other country within that time.[6]

The system of cultivation was not very different from that of the present time. In Taxila specimens of some agricultural implements used in the Maurya and the Śaka-Parthian periods have been found.[7] These are all made of iron and as by the time under discussion the iron industry had developed in different parts of the country,[8] we may hold that implements similar to the samples

[1] *Infra*, pp. 142-43. [2] *Infra*, p. 70

[3] Beal, *Chinese Accounts of India*, II, p. 208.

[4] Spate, *India and Pakistan* p. 41. [5] *Comp. HI*, II, p. 430.

[6] We discussed this point with Prof. G. Manley, Head of the Department of Geography, Bedford College, University of London.

There is, however, good evidence that rainfall in the Indus Valley region and Baluchistan was quite heavy in the third millenium B.C. (Piggott, *Prehistoric India*, [Penguin Books] p. 68.)

[7] Marshall, *Taxila*, II, p. 538ff, III, pl. 169.

[8] *Infra*, pp. 51-52.

of Taxila were used in other regions also, of course with local variations. Spades of the modern type have been found in the Sirkap level, where objects roughly dated in the first century have been found. By that time similar spades appeared in the Roman world also.[1] Hoes, chisel-headed spuds and weeding forks show a developed form. Two different kinds of sickles, one with a curved blade of the European style and the other with a straight blade, have been unearthed. Like other manufactured objects found at Taxila, these agricultural implements too bear some marks of Western influence in their shaping.

Let us now turn to the economic and social position of the man behind the plough in the India of our period. As noted above the land revenue was fairly high and there were no doubt many irregular exactions due to war, natural calamities or bad fiscal administration. Even if we accept the Junagadh inscription literally, with its picture of a self-satisfied liberal ruler, we have no evidence that his example was widely emulated. In these circumstances the cultivator on whom the ultimate burden fell could hardly have been well off. This may be inferred from the fact that of the votive grants of our period we do not meet many cases where the donor comes from the cultivating class. In normal time when rainfall was regular and official control less rigid, we should think, relying on the prescriptions of the *Dharmaśāstras*,[2] —that the condition of agriculturists was not too bad. But the very fact that the king is so strongly advised to consider the welfare of the peasants bears evidence of cases in which the advice was not followed.

Agriculture and cattle-breeding were the task of the *vaiśya* according to Manu, who permits the *brāhmaṇ* to take up agricultural profession only in time of acute distress, for it causes many deaths (*pramṛta*).[3] It seems that this underlying stigma came to be attached to the cultivating profession not very long before our period. In Vedic and Buddhist literature we meet occasional references to *brāhmaṇs* cultivating land in normal circumstances.[4] Of course the owners of big estates always employed labourers. The agriculturist Kāsibhāradvāja (*Jāt*, IV. 276), obviously a *brāhmaṇ*, was one such big employer. Perhaps, the position of this kind of estate-owner was not very different from that of the

[1] Marshall, *loc. cit.* [2] *Supra*, p. 37. [3] I. 90; X. 79; IV. 3, 5.
[4] Bandyopadhyaya, N.C., *op.cit.* pp. 135-36.

gentleman-farmer of Greece of which we learn from the writing of Xenophon.[1] In Greece the actual tillers of big farms were mainly slaves and in India they largely came from the lowest social rank, consisting of slaves, people of *hīnajātis* (depressed castes) and others.[2] We have reasons to believe that from the Maurya period onwards cultivation was mostly done by these people of low social status who were not the full owners of their land. For though we have no clear evidence of large scale farming in our period, a gradual trend towards developing intermediate interests in land may be assumed as we proceed from the Maurya to the Gupta period. The strict control from the central government of the Mauryas could not be maintained during the later period of rather unstable political conditions and smaller states. The bureaucracy was replaced by a hierarchical order of heads of villages called lords of villages.[3] Thus half the way towards the feudal or quasi-feudal system of the medieval period[4] was reached by our period which has been termed a proto-feudal stage.[5] Under this system it is quite likely that the actual cultivation was done by people from the lower strata of the society. The cultivator's status turned into that of a cheap labourer and the consequent stigma stuck to his profession. Moreover, people at the top looked down upon the manual labourer in all countries of the ancient world.

By this time, through the influence of Buddhism and Jainism, the idea of non-violence had entered into all kinds of beliefs and activities, sometimes to an absurd length. People who were not strictly within the fold of these heterodox systems could not avoid sharing in the ruling principle of the time. Any kind of profession involving the taking of life was looked on as derogatory. The following extract is from a Jain canon: ... injury to the earth is like striking, cutting, maiming or killing a blind man...knowing this a man should not sin against earth or cause or permit others

[1] Rostovtzeff, *SEHHW*, II, p. 1181.

[2] Bose, *op.cit.* pp. 414, 423.

[3] *Manu*, XII. 115-19.

[4] *JESHO*, I (1958) p. 297 f. (Sharma, *The origin of the Feudalism in India* c. 400-600 A.D.).

[5] Kosambi, *Introduction to the Study of Indian History*, p. 241. Feudalism is rather a forced term when used in the history of the Indian land system. For many of the essentials of this institution were never present in India. But lack of an appropriate term makes us use this expression.

to do so...And there are many souls embodied in water. Truly water...is alive....There are creatures living in earth, grass, leaves, wood, cowdung and dustheaps....[1] According to these tenets, cultivation involves one in violence. Of course there are no criteria by applying which we can find how meticulously these were accepted by the people at large. But it is obvious from the passage in *Manu* to the effect that agriculture causes many deaths and that the brāhmaṇ law-givers had to take account of some of the principles of the heterodox schools of thought and prescribe accordingly. The inevitable use of violence by the cultivators must have had some effect in making their social status very low.

We should, however, bear in mind that the conception of the four original castes had never any practical basis.[2] Whatever their category might be in the law-books the actual position of the cultivators had been very low. This was observed by the Seventh century Chinese pilgrim Hiuen-Tsang who described the cultivators as *shu-ti-lo* or *śūdra*.[3] As social history is not our immediate concern we shall not discuss the matter further, but it seems that the condition of the ordinary peasant has not changed much since our period. The tenuous evidence which we have, suggests that we shall not make the mistake of projecting the present upon the past if we try to study the agriculturists of ancient India through their present-day descendants.

[1] *Ācārāṅga Sūtra* I. 1.
[2] *Oxford History of India* (3rd Ed.) p. 62.
[3] Beal, *Travels of Hiuen Tsiang*, II, p. 138.

CHAPTER II

# INDUSTRY

THE division of labour provides a safe criterion of the volume and standard of the industrial enterprises of a country. On that basis it becomes obvious from literature that some parts of India were fairly developed in craftmanship right from the Vedic period and it did not take long for some craftsmen to become specialised.[1] Even at that time we find more than one term for potters—*kulāla* or *kaulāla*, *mṛtapaca*—signifying some difference of functions within the same profession, bows and arrows are being made by different persons and a chariot-builder (*rathakāra*) is a different man from an ordinary carpenter;[2] while a few centuries afterwards in Homeric Greece the same smith makes ploughs as well as ornaments and the same wood-worker makes a sill, a bow and a ship.[3] Of course it is not very helpful to compare countries where natural resources, demands; and markets were not quite similar. We should not forget also that though in early times the Greeks were probably not as specialised in their industry as the Indians, by the Hellenistic period, from the Greeks especially of Alexandria came some of the best craftsmen of the world and the arts and crafts of India of the first half of the period under discussion show considerable Hellenistic influence. However, the subsequent literary sources show further divisions of labour and we can infer from them a gradual development of industry in India. The literature of our period proves that professions had become hereditary and usually caste-bound. From *Manu* we learn that the *brāhmaṇas* and the *kṣatriyas* are to follow their own professions under normal circumstances, but if they are unable to subsist on them they can accept the work of a *vaiśya*—agriculture, rearing cattle or selling goods. But people of the upper castes are never encouraged to accept craftsmanship

[1] *CHI*, 1, p. 100.

[2] Bandyopadhyaya, *Economic life and progress in ancient India*, Vol. 1, pp.164-65.

[3] Bolkstein, *Economic life in Greece's Golden age*, pp. 43-44.

as a profession. It is even said that the *śūdras* can take up mechanical occupation when they are unable to find services with the upper castes. Only under dire distress are mechanical arts prescribed to all men.[1] Such an attitude towards craftsmanship undoubtedly had an adverse effect on the industrial life of India.

Except for the objects found in the Indus Valley in the middle of the third millennium B.C. archaeological evidence of early Indian craftsmanship in articles of mercantile value does not come to hand in quantity till the beginning of the period under discussion. These objects have been found mostly in the Sirkap part of Taxila. Due to geographical and political reasons Taxila has always been prone to outside influence and this is clearly proved by the type and quality of objects found there. So Taxila finds are not very helpful in allowing us to form an idea of the general standard of the industrial products of India of that time. The objects found in other parts of the country are neither numerous nor varied. A large number of coins of indigenous types belonging to this time have been unearthed in different parts of India, and most of these are rather crude and without proper finish.

We shall now discuss some important industries giving a short resumé of their state of development in the earlier period.

## METAL OBJECTS

Though mainly pastoral and agricultural the Ṛg Vedic people had among themselves varied types of craftsmen necessary for the organised society of that time. Gold[2] and *ayas*[3] are the two metals

[1] *Manu*, X. 82-90, 99-100, 116.

[2] Gold is repeatedly mentioned in the *R.V.* by different terms—*hiraṇya, suvarṇa, niṣka*.

[3] In the *Vedic Index* II pp. 31-32 *ayas* has been suggested to mean bronze rather than copper or iron, for which we find separate terms in the later Vedic literature.

According to the general ethnographical conception bronze age preceded iron age. But scarcity of bronze finds suggested to scholars (*I.A.* 1905 pp. 229 f, Smith, *The Copper Age*; Coggin Brown, *Catalogue of pre-historic antiquities in the Indian Museum*, pp. 11-12) think that India had no bronze age. However, bronze was used in early India from the third millennium B.C. though never on a large scale.

The difficulty of *ayas* to mean iron is that until C. 1000 B.C. it was hardly used anywhere outside Anatolia. So it is quite likely that *ayas* stands for bronze or any similar alloy.

they used. What is meant by *ayas* is highly controversial. Agricultural implements, household objects, pegs for chariots, armour and weapons were made out of it.

In the later Vedic period knowledge of metals was extended. People were using, besides gold and *ayas*, silver (*rajata*), iron (*śyāma*), copper (*lohā* or *lohita*), lead (*sīsa*) and tin (*trapu*).[1] However, we gather very little, if anything, from literature, as to how these metals were worked until we reach the Buddhist period. From now on we meet some references which, though not very helpful in forming a full idea of ancient Indian metallurgy, prove that the advanced theoretical knowledge necessary for a developing metal industry was not wanting. In the *Arthaśāstra* there are comparatively detailed discussions of various kinds of ore of different metals, materials necessary for extracting them, ways of removing impurities from ores, methods of combining different metals, how metals are made soft, and other metallurgical processes.[2] In the same section of the *Arthaśāstra* we find a passage stating that by the colour, smell and taste of the soil an expert would know of the presence and richness of mineral ores beneath it. According to this text, a mine superintendent should be conversant with the art of distillation and condensation of metals.[3] The information is not sufficient for an elaborate study of early Indian knowledge of mineralogy and metallurgy but there is no reason to doubt that the system followed in metal workshops, at least in some parts of India was based upon the methods prescribed in these texts, and that they were followed for a long time.

The smith's trade was divided from the early Vedic period. In the *Milindapañha*, assigned to the first century B.C., there is a list of workers in gold, silver, lead, tin and iron, all working separately.[4]

The ownership of mines is an important question. According to the *Arthaśāstra*, which prescribed governmental control over almost all resources, the State owned all the mines.[5] We have no other source to corroborate this proposition except an inscription found in West India which reports that the donee is being given the special

[1] In some of the later *saṁhitās* the terms *lohāyasa* and *śyāmāyasa* have been used to mean copper and iron. Though *lohā*, at the present time, is used for iron we think Gordon (*The prehistoric background of Indian Culture*, p. 153) is wrong to hold that in the Vedic period also this word meant the same thing. *Tāmra* for copper perhaps first occurs in the *Artha*. See Schrader's *Prehistoric antiquities*, p. 212.

[2] *II*, Chs. 1. 2-14. [3] See Appendix C. [4] *I*, 1.2. [5] *II*, Ch. 12.

right of ownership of the properties beneath the field donated b king.[1] This proves that generally king was the owner of all m

### (a) *Objects of Iron*

The most important craftsman in metal was undoubtedly the blacksmith. Whether the Indian iron industry is as old as the *Ṛg Veda* is a highly controversial question. In the north-western part of India there are still a few deposits of iron ore though these are not commercially used.[2] So the early Vedic people had access to iron ores but whether they knew the art of smelting them is not possible to know. Some scholars hold *ayas* as iron and have even tried to establish, on rather unsound grounds, that "wootz steel" was manufactured by the Ṛg Vedic people.[3] As explained above (p. 47 n. 2.) we think that the use of iron began from the late Vedic age.

By the beginning of the historic period the Indians became proficient in the iron industry as is proved by numerous references in foreign and indigenous literature. Ktesias, the Greek physician in the Persian court during the later part of the fifth century B.C. mentions two wonderful Indian swords which were given to the Persian king.[4] We also learn from Quintus Curtius that Poros presented one hundred talents of Indian steel to Alexander.[5] Salmassius informs us of a Greek monograph on Indian steel. Under Marcus Aurelius there was an import tax on *Ferrum Indicum*.[6]

In providing technical information the Indian literature of the time is not very helpful. The *Arthaśāstra* gives us some idea of iron ores used at that time.[7] About the particular processes of manufacturing iron and steel products ancient Indian literature leaves us almost ignorant. Efforts have been made to extract something from different literary sources of the early period but

[1] *EI*, VIII. p. 67. (Senart—*The inscriptions in the caves at Nasik*). Kosambi (*An introduction to the study of Indian History* p. 242) holds that as royal monopolies are casually mentioned in *Manu* (VIII. 399) metals and salt were no more under State ownership. But there is no positive evidence to confirm it.

[2] Spate, *op.cit.* p. 270.

[3] Neogi, *Iron in Ancient India*, pp. 1-7; *IHQ*, III, pp. 121-33, 793-802; V, pp. 432-40; VIII, pp. 364-66; Forbes, *Metallurgy in Antiquity*. p. 436. Wootz Steel making has been explained in p. 51.

[4] Forbes, *op.cit.* p. 438.

[5] *IX*, 24.

[6] Marshall, *Taxila*, II, p. 534.

[7] *II*, ch. 12; *Infra*, p. 345.

not to much effect. A few Indian texts of medieval times are rather more helpful in this way.[1]

In the Tinnevelly district of Madras the oldest Indian iron objects—swords, daggers, tridants, spears, javelins, arrows, spades and hangers—have been found near some prehistoric burial sites.[2] Perhaps the earliest specimens of iron objects of Northern India are those excavated in the Bhir mound in Taxila and in Bodh-Gaya. In the latter place, a piece of iron slag, claimed to be the earliest archaeological evidence of the manufacture of iron in India and perhaps belonging to the third century B.C. has been found. Some clamps made of wrought iron have also been unearthed there.[3] Objects of various types such as, spear-heads, nails, axes and similar simple implements roughly belonging to the period between the fifth and the second century B.C. have been found in different parts of India but these finds are too few in number and fragmentary or corroded in condition to come to any historical opinion about them.

In the Sirkap city of Taxila a large number and variety of iron objects have been unearthed. They have been divided into five groups:

1. Household utensils,
2. Arms and armour,
3. Horse-bridles and elephant goods,
4. Tools,
5. Miscellaneous (needles, plummets and a number of unwrought ingots).[4]

Many of these objects show the influence of the Graeco-Roman world of the early Christian period. Bactrian, Śaka and Parthian influences have also been traced there. Even the tools which are generally least affected exhibit some foreign touch. But that all was not foreign there is proved by the shape and content of some objects. A few double-edged and straight swords have been found in Sirkup which much resemble the prehistoric

[1] Ray, *History of Hindu Chemistry*. I. p. 83 f.

[2] *ASR*, 1902-1903. pp. 111-40 (Rea, *Prehistoric antiquities in Tinnevelly*). The recent tendency is to attribute these objects to the period not before fourth century B.C. (Gordon, *op.cit.* p. 171).

[3] Neogi, *op.cit.* p. 13.

[4] Marshall, *op.cit.* p. 533

swords found at Tinnevelly, mentioned above. The high carbon quality of steel found at Taxila and that of a sword of Besnagar perhaps manufactured in about 100 B.C. are very similar.[1]

The Taxila specimens show that though steel of fine quality was made it was never tempered. It may be due either to ignorance on the part of the smith or to the fact that it was unnecessary to temper steel of such quality. Marshall suggests that the process employed in producing steel in Taxila was that known as cementation.[2] Making steel by the process of cementation consists in combining wrought iron with the requisite quantity of carbon. India had a particular way of carbonisation which survived up to recent years.[3] In South India it went on till the 19th century as is known from the accounts of travellers, such as Voysey (1795), Buchanan (1800) and Heyne (1794-1814). From Heyne's account we know that dried branches of *cassia auriculata* and fresh leaves of *convolvulus laurifolia* were used in Mysore for steel making in the early 19th century. Of course we are not sure whether this particular process was followed in Taxila, whether the steel-makers there knew of any other process, or whether they learnt something from the foreign blacksmiths residing there. We would conclude our discussion of the iron objects of Taxila with Marshall's words that "our examination does not indicate any special qualities in this iron above (i.e. iron found in Taxila) than that produced in other parts of India, recognising, however, that, judged by ordinary standards, Indian iron in general is of excellent purity."[4]

Iron objects excavated in other places are not very varied and unfortunately many of them have not yet been properly analysed. These objects may be roughly classified as:

[1] *ASR*. 1913-14. pp. 203-204. [2] Marshall, *op.cit.* p. 535.

[3] Neogi, *op.cit.* p. 72, describes the Indian process of cementation thus: "Wrought iron is first obtained by the direct method, viz. heating the ores of iron with charcoal in small blast furnaces (the blast being admitted by means of hand bellows)....The wrought iron is then cut into small pieces and taken in crucibles along with certain kinds of wood and leaves of plants and then heated in charcoal blast furnaces with the lids closed. The blast is continued from four to six hours when the steel is obtained in molten condition. Water is then sprinkled or poured on the metal, which is thus hardened on being quenched and the steel obtained is in a crystalline condition." The steel manufactured in this way is known as wootz steel.

[4] Marshall, *op. cit.* p. 563.

(*a*) agricultural implements and tools of craftsmen—axes, adzes, sickles, chisels and screw rod of cotton press,
(*b*) weapons—arrow heads, spears, javelins, spear-heads and their sockets,
(*c*) miscellaneous goods—nails, bars, cramps, ladles, handles of different kinds, hooks, rivets, fish-plates, miniature bells, knives and iron rings.

Many iron objects found are of indeterminate type and in a fragmentary condition.[1]

India is still very rich in iron ores and these are spread all over the country.[2] Easy availability of ores was undoubtedly one of the important factors in the early development of the iron and steel making industry in that country. Technical skill in utilising these resources was developed there long before the beginning of the Christian period, as has been proved by much evidence, though there are not at present sufficient data to determine how long before the Christian era this was achieved. In any case, there is nothing to justify the claim made by a few early scholars that steel was first made in India.[3] The latest archaeological information shows that the smelting of iron was known in Asia Minor before the end of the third millennium B.C. and considerable technical improvement was made by the Hitites round about 1400 B.C.[4]

That the iron manufactured in India in the early Christian period had foreign markets is known from references in foreign literary sources. The Periplus mentions export of Indian iron and steel from Ariaca (around the Gulf of Cambay) to African ports.[5]

[1] This list has been drawn from the different reports of the *ASR* and the following books and monographs:
Sahni, *Archaeological remains and excavations at Bairat*, p. 39.
Altekar and Mishra, *Report on Kurmahar excavations*, pp. 51-55.
Lal, *Excavations at Hastinapur*, pp. 95-99.
Rydh, *RangMahal*. p. 171.
Sharma, *Excavations at Kausambi*, 1957-59, pp. 46-48.
[2] Spate, *op.cit.* pp. 263-64.
[3] *J R A S, First Series*, V. pp. 390-97. Heath's letter. Mushat, *Papers on Iron and steel*. p. 669.
[4] Gordon, *op.cit.* p. 154.
[5] Pliny, XXXIV. 154, we accept the identification of Series with the Chera country; Periplus, 6, 40, 41.

The high quality of the Indian iron, sufficient evidence of which we have seen in the period under discussion, continued for a long time till the late medieval period. This is proved by the famous iron pillar at Delhi attributed to the time of Chandragupta II (A.D., 375—413), beams found in the temples of Orissa in the early medieval period, reference to blades made of Indian steel in Damascus[1] and the accounts of the travellers like Idrīsī (12th century), Marco Polo (13th century) and Tavernier (17th century).

We would draw attention to a fact which seems to be significant. We have seen above that quality of Indian iron was fairly high. But among the excavated iron objects attributed to our period, except some from Taxila, we find few specimens which could be called fine in design and finish. Thus, though sources like the Periplus, which attest that Indian iron had markets abroad, it seems clear that this was in the form of ingots or pieces of unprocessed iron and steel, and not that of consumer goods. The different situation in Taxila was no doubt due to foreign inspiration. Was this due to neglect of an important side of craftsmanship or was there some other reasons? We shall deal with this question later, after discussing a few other industries of that time.

(b) *Objects of Copper and Bronze*

Copper and bronze were employed by the Indus valley people for materials of daily use.[2] The amount of lead present in these materials suggests that mines in Baluchistan, Afghanistan, Iran and perhaps Rajasthan served as necessary sources.[3] The use of copper is regularly mentioned in Indian literature from the later Vedic period onward. Archaeological evidence in the form of copper objects has been found in all parts of northern India.[4] The upper time limit of these finds cannot be precisely determined but many of them can easily be dated previous to 1000 B.C.[5]

Of the notable copper hoards so far unearthed the Gunjeria

[1] Forbes, *op.cit.* p. 439.
[2] Marshall, *M I C*, p. 30.
[3] Forbes, *op.cit.* p. 350.
[4] Coggin Brown, *Catalogue of prehistoric antiquities in the Indian Museum*, pp. 8-11.
[5] *I A*, 1905, p. 240 (Smith, *The Copper Age*).

deposit of Madhya Pradesh constitutes the largest and the most varied.[1] A large number of axes, bar-celts of copper along with some silver plates were found in this deposit. These copper objects are made of almost pure metal and they are of the hammered type. It has been suggested that this hoard was a trader's stock on transit and the blunt copper weapons might have been *axe-money* in use then in this area and the whole contents of the hoard were in fact forms of currency.[2] It seems the date of these finds is far away from our period when coin-currency was prevalent all over the country, but the extensive and varied use of copper in early India, is proved by these objects.

Let us now turn to the finds in the historical period. A heavy *solid copper bolt was found in the Rāmpurwā Aśoka Pillar in* North Bihar, and this is assigned to the third century B.C.[3] It was made by casting and finished by hammering, as was the case with the Gurjeria implements.[4]

In Taxila no copper or bronze object has been found before the fourth century B.C. and very few before the first century A.D. This fact has led Marshall to think that copper and bronze were gradually replaced by the stronger metal iron with its advent in the later Vedic period, and that some centuries elapsed before they returned to common use.[5] This opinion seems true in the case of bronze[6] but we have some doubts as regards copper objects. Conditions in Taxila do not necessarily reflect the position in other parts of the country. Copper specimens have been found in different parts and copper coins were current in several regions of upper India before the beginning of the Christian period. To support his view Marshall has raised the question of shortage of supply of copper which he thinks is confirmed by the statement in the Periplus that copper and tin were imported to

[1] *I A, op.cit.* p 233.

[2] Gordon, *op.cit.* pp. 142-43. Gordon thinks that these objects typical of Bihar were coming from the copperfield region of Bihar (Dhalbhum copper belt) and a caravan route passed near the site where these objects were found.

[3] *A S R*, XVI, p. 113. (H.B.W. Garrick, *Reports of tour in North and South Bihar.*)

[4] P. Neogi, *Copper in Ancient India*, pp. 18-20; Smith, *op.cit.* p. 288.

[5] Marshall, *Taxila*, II, p 564.

[6] *A I*, XII, pp. 53-57. (Lal, *An examination of some metal images from Nalanda.*) After the Indus Valley culture practically no bronze object is found till the beginning of the Christian era.

India from the West.[1] But the date of the Periplus is too late to back Marshall's contention. This text is attributed to the first century A.D. and finds of copper objects by this time in Taxila are considerable. Moreover, import of a commodity does not always imply the shortage of its supply from inside the country. Quality and price are also important factors which should be taken into consideration. Even in the modern period, a few decades ago copper was imported to India as indigenous copper could not be sold at a price which would enable it to compete in the regular market on equal terms with the metal brought from outside.[2] Perhaps the process of smelting copper in India was more expensive than in other countries even at that time and that is why the metal had to be imported.

Extensive ancient copper workings exist in different parts of South Bihar and Orissa and there are many records of ancient mines in Madras, Madhya Pradesh and Rajasthan.[3] Of course, when these resources were first worked is impossible to discover. With the coming of the westerners into the Indian political scene the available sources increased; for due to political contact they could have brought copper from Persia, Armenia, the Caucasus, Southern Syria, Asia Minor, Cyprus and other Mediterranean countries.[4] Strabo mentions Indian copper without locating its origin in any particular region.[5] From the Periplus we learn that copper was also exported from Barygaza to the Ommana and Apologos region[6] and it has been suggested that this was re-shipment of the surplus foreign metal to the markets in the region of the Persian Gulf which were affected by the war between Rome and Parthia.[7]

The rarity of bronze objects unearthed in India in the prehistoric period suggests that perhaps there was no Bronze Age in India.[8] But tin, the other component of bronze besides copper, is available in India in the form of cassiterite. Dharwar and Palampur in Western India, Rewa in Central India, Bihar and Orissa are tin-producing regions.[9] Perhaps tin was imported

[1] pp 28, 49, 56 [2] Coggin Brown, *India's Mineral Wealth*. p. 86.
[3] *Ibid.* p.90. [4] Marshall, *op.cit.* p. 565. [5] *XV.* 1. 69. [6] p. 36.
[7] Warmington, *Commerce between the Roman Empire and India*, pp. 268-69.
[8] Smith, *op.cit.* p. 229 f. He points out that the bronze objects found in the Tinnevelly district were made for purposes of luxury and no tool or weapon made of bronze was found there. *supra*. p. 47. n.2.
[9] Coggin Brown, *op.cit.* p. 103.

learnt the use of brass from the West by the third century B.C.[1]

Copper-nickel compound is very ductile and suitable for hammer work. Nickel occurs in the Chotanagpur area with copper and magnesium.[2] Nickel might have been brought from outside also. The Indo-Greek Kings Euthydemus II, Agathocles and Pantaleon, belonging to earlier part of the second century B.C.[3] issued some coins which on chemical analysis were proved to be made of an alloy containing copper, nickel and some other minerals.

As in the ancient world only the Chinese had some knowledge of making alloys with nickel, which they called *pai-t'ung* meaning white bronze, it has been suggested that nickel might have come to the north-western part of India from China.[4] Some jewellery and fancy goods made of almost the same alloy as that used in China were found in Taxila and these are attributed to the period between the third and first century B.C. In the province of Yunan a natural mixture of copper and nickel is found.[5] This is mentioned in the annals of the Han dynasty which also refer to the existence of trade between China, India and Bactria in the second century B.C.[6] But this "Nickel-alloy" theory has been objected to on several grounds. There is nothing to prove that the Chinese used this particular alloy in the same period when the Indo-Greek coins in question were minted. It is possible that the white bronze contained tin and not nickel. Above all, the transport of bulky material like natural ores of copper and nickel from Yunan all the way across Burma, Assam, and Northern India to Taxila is too hazardous a problem. It seems quite doubtful as the objects of nickel alloy found in Taxila are so few and none at all in other places.[7] Rather the material could have been brought from Iran where nickel has been found in old copper mines.[8] The sources in Chotanagpur which we have

[1] Marshall, *loc, cit.* [2] Coggin Brown, *op. cit.* pp. 134-35.

[3] Narain, The Indo-Greeks. p. 181.

[4] Marshall, *op. cit.* pp. 571-72;
Flight, W., *Numismatic Chronicle*, 1868, pp. 305-308;
Cunningham, *Numismatic Chronicle*, 1873, pp. 189-90.

[5] Read, and Pak, *A compendium of minerals and stones*. p. 4.

[6] Bushell, *Chinese Art* I, p. 12.

[7] *Sinologica*, 1958, pp. 2-8 (Cammann—*Archaeological evidence for Chinese contacts with India during the Han dynasty.*)

[8] *Sinologica, loc. cit.*

from the Hindu Kush, Khorassan and Kardagh hills where Marshall thinks the discovery of bronze might have been made for the first time, as copper and tin occur there side by side.[1] The import of tin from Western countries is mentioned in the Periplus.[2]

Lead, zinc and nickel were also sometimes used to make bronze. According to Pliny. India had neither copper nor lead[3] which is wrong. Galena, sulphide of lead occurs in many places in India and was mined on a small scale in the early period.[4] There are lead mines of ancient date in Rajasthan, Madhya Pradesh, Bihar, Orissa and Madras. Lead might have been obtained from Afghanistan and Persia.[5] It was imported through Western Indian ports in the first century A.D.[6] It is obvious from the many specimens that the imported metal was used by the Sātavāhana rulers.

Zinc is very rare in India. Only in Jawar, Rajasthan it is available.[7] The process of extraction of zinc from calamine was known to the Indians but perhaps not as early as the period under discussion.[8] It might have been brought from Honan, the Altai mountains or Karman.[9] By smelting copper ores with zinc, brass is prepared. Literary reference to this particular metal is not found before the time of the *Arthaśāstra*, where it is mentioned as *arakuta*.[10] In the *Caraka Saṁhitā* and *Manu* the word *riti* is used for brass.[11] The archaeological evidence proves the use of this metal in north-western parts of India. Some specimens have been unearthed in Taxila. Inside the great stūpa at Māṇikyāla were found a brass box "cast and beautifully turned in lathe" along with some Kuṣāṇa coins. Brass coins were also issued in some parts of Northern India. Brass objects have been discovered in Asur graves of Chotanagpur but the exact dating of these objects is not possible.[12] Marshall presumes that the Indians

[1] Marshall, *op.cit.* p. 566. Mines of Dragiana mentioned by Strabo (XV.724) were in these regions, according to the author.

[2] 28, 49, 56.

[3] *Natural History*, XXXIV. 163.

[4] Coggin Brown, *op.cit.* p. 91.

[5] Marshall, *op.cit.* p. 566.

[6] Periplus, 56.

[7] Coggin Brown, *op.cit.* p. 96.

[8] Neogi, *op.cit.* p. 41.

[9] Marshall, *op.cit.* p. 571.

[10] *II.* Ch. 12.

[11] *Caraka Saṁhitā*, III. 4, V. 26. Lévi thinks that this medical treatise was composed in the first century A.D. (Journal Asiatique, 1896. Tom. VIII); *Manu*, V, 114.

[12] *J B O R S*, 1920. p. 393 f. (Roy, S.C., *Distribution and nature of Asur sites in Chotangapur.*)

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[6] Bushell, *Chinese Art* I, p. 12.

[7] *Sinologica*, 1958, pp. 2-8 (Cammann—*Archaeological evidence for Chinese contacts with India during the Han dynasty.*)

[8] *Sinologica, loc. cit.*

mentioned above were not tapped perhaps, for no object made of copper and nickel alloy has been unearthed in the neighbouring areas.

The copper and bronze objects found in the strata attributed to our period in Taxila may be roughly divided into the following groups:

(a) Tools and instruments,
(b) Household utensils,
(c) Ornaments and other luxury goods,
(d) Figurines,
(e) Miscellaneous.

The proportion of finds belonging to different groups are not all equal and their numbers also vary in different strata. Metal figurines are very rare. Household goods have been found only in the Śaka-Parthian part of Taxila, whereas many personal ornaments are referable to all the strata. The processes employed in manufacturing these goods were:

(a) Hammering and when necessary, rivetting and soldering the hammered goods;

(b) Casting, soild and hollow. In the first method the moulds had to be filled up with the metal and so the products would become very heavy even if it was not necessary. To avoid this drawback, and also for casting hollow vessels, the latter method generally known as *cire perdue* ("a method of casting in metal by means of external mould in one piece from which the wax of the model can be removed only by melting") was employed;

(c) *Repoussé* work (a work in relief executed by blows from the back of sheet metal).

Chemical analyses have shown that soft and almost pure ductile copper was used at Taxila and very little lead and sulphur could be traced as alloy, which demonstrates the metallurgical skill in this part of India. It has been found that some of the bronze objects do not contain lead, the presence of which in the bronze alloy makes the metal tough. Perhaps this was the reason for the brittleness of some Indian bronze objects which was noted by Nearchus in the fourth century B.C.[1] However, a large number of bronze objects found in Sirkap contain considerable lead in

[1] *CHI*, I, p. 418.

varying proportions. Copper mixed with other kinds of alloy, zinc and nickel was also used in Taxila.

Though foreign influence is prominent in most of these objects, there is no doubt that some of the processes described above were known to Indian craftsmen from earlier times. The advent of the Westerners, however, improved design and technique to a great extent.

One of the objects found in Taxila bears positive evidence of its Chinese origin. It is the cocking device from the release mechanism of an early Chinese crossbow. This first century specimen discovered in the remains of the second Parthian palace at Sirkap is made of a very fine quality of bronze[1] which was generally used to make such weapons in the contemporary China. Compared with other Chinese crossbows this particular one is oversized. Perhaps this was especially designed for using from a distance. It has been suggested that this weapon might have been used by the Chinese *outpost garrisons in Central Asia against the semi-nomadic raiders* including the Parthians, who got hold of it, brought it to Taxila, and kept there as a trophy. However, the significant point here is why the Parthians did not make similar weapons themselves. It does not seem that the mechanism of this Chinese weapon would have proved too complicated for the local craftsmen. We agree with the suggestion that perhaps the high quality bronze casting, possibly with a special tempering process, necessary for making this type of weapon was not known in Taxila.[2] We have noticed before that the fine steel products found in India were never tempered.

Copper and bronze objects attributed to our period have been excavated from many other places. Unfortunately they have not been properly catalogued, compared and analysed. Objects of various kinds—household goods, ornaments, a few tools and many types of mountings have been found. From numerous excavations it is obvious that bronze ornaments were popular in some parts of India.[3] Owing to their fragmentary condition the purpose of many of these objects cannot be recognised at all. Copper coins were issued by almost all the dynasties from the Indo-Bactrians

[1] In the *A S R*, 1915-16 it was listed as a copper object by mistake, according to Cammann.

[2] *Sinologica, op. cit.* pp. 8 f.

[3] Altekar and Mishra, *op. cit.* pp. 130-31.

down to the later Kuṣāṇas. Lead coins of the Andhras are well known. Most of the donative plates and caskets which comprise a very important source of the political history of our period are made of either bronze or copper. There is no doubt that a certain sanctity was attached to copper and its allied metals in India from the early times, but the reason is not very clear. Though Megasthenes wrote: "Vessels of Indian copper set with precious stones contributed to the brilliancy of the public ceremonies during Chandragupta's reign," in our period we have not found many evidences of fine craftsmanship in copper and bronze goods except in Taxila. But that the standard improved very much within a short period is borne out by the remarkable copper statue of Buddha of Sultanganj, assigned to the fifth century A.D.[1], and bronze idol belonging to the same period found at Nalanda[2] and Hiuen-Tsiang's account of the Copper Colossus.[3]

(*c*) *Objects of Precious Metals*

"For ceremonial purposes among the Hindus the metals are ranked in order of purity. Gold takes the first place and is followed by copper, silver, brass and iron. It can embody a genuine tradition about the chronological sequence in the use of different metals in this country."[4] We do not wish to discuss the truth of this doubtful statement but the author's assertion of the very early use of gold in India can be accepted without any doubt. It is obvious from the literature that gold was used to a considerable extent by the Ṛg Vedic people. However, there is no uniqueness in this fact. In minerally rich countries gold often happened to be one of the very few metals to be used first. In the Armenian mountains or highlands of Iran where the science of metallurgy developed fairly early, gold is supposed to have been the first metal extracted.[5] In the *Ṛg Veda* we find descriptions of gold ornaments of various kinds. *Niṣka*, one of the terms for gold in that text, according to some scholars,

[1] Smith, *Fine Arts of India and Ceylon*, p. 127.

[2] *AI*, XII, pp. 53-57.

[3] Beal, *Life of Hiuen Tsiang* (Translation from the works of Shaman Hwai Li), p.119.

[4] S. K. Chakrabarty, *Ancient Indian Numismatics*, p. 63.

[5] Forbes, *op. cit.* pp. 140-41.

might mean gold coins.[1] But there is nothing to prove that the Ṛg Vedic people were acquainted with minted money. Practical evidence of minting gold coins appears in India much later, during the reign of Kuṣāṇas. We do not find any reference to silver before the time of the later *Vedas* and it seems that because of the absence of convenient sources of supply and metallurgical difficulty its use was limited in early India. Subsequent literature, both indigenous and foreign, and archaeological excavations prove the abundance of gold in India and the gold hoarding mentality of the people.

Though at present gold is mined solely from the Dharwarian quartz-reefs at Kolar in Mysore,[2] it seems that in early India numerous sources, mineral and alluvial, were used. Apart from Mysore there are traces of ancient gold workings in Hyderabad and Madras.[3] From river beds in some parts of India gold is still found, though in insignificant quantity. Previously it seems this source was quite rich.[4]

From the Western classical sources we have some idea about the gold resources of early India. Herodotus who refers to the annual remittance of 360 talents of gold dust as tribute from India to Persia, traces the source to the desert east of India, which has been identified with the desert tract to the east of the Indus.[5] Strabo thinks that India's gold and silver resources exist in the mountains near the country of the King Sopeithes, identified with the region in the Punjab either east or west of the Jhelum.[6]

We learn about the famous "gold digging ants" from these and other classical writers,[7] but the significance of these ants, in spite of much discussions, has not yet been made clear. It is held that this legend refers to import of gold from abroad as

[1] Bandyopadhyaya, *op. cit.* pp. 180 f. [2] Spate, *op. cit.* p. 266.

[3] Marshall, *op.cit.* p. 620.

[4] PHAI *op.cit.* p. 241. Strabo, *XV.* I. 69; La Touche, *A Bibliography of Indian Geology and Physical Geography with annotated index of Minerals of economic value*, 11, p. 187.

[5] Herodotus, *III*, 94 and 98.
McCrindle, *Ancient India*, p. 3. n.1.

[6] Strabo, *XV.* 1. 30; *C H I*, p. 371, n.5.

[7] Herodotus, *III*, 102-26; Strabo, *XV.* 1. 37 C 703, XV. 1. 44 c. 706; Arrian, *Indika* XV. 6; Pliny, *op. cit.* XXX. 36, 66.

ant gold never originated in India. Gold might have been brought to India from Afghanistan, Chinese Turkestan, Siberia, Tibet, Burma and Malaya.[1] From the time of the Kuṣāṇas, when more gold was needed for coinage, the import had to be supplemented, but from where we are not definite. We shall discuss this problem in more detail later.

X·2·19 R'D

Though in Mohenjo-Daro and other Indus Valley cities some silver ware have been found we do not know wherefrom and how silver was extracted. Silver in association with lead is found in Bihar, Orissa, Madhya Pradesh and the Kulu Valley, but as the extraction of silver from lead ore is a costly process working goes on only in the mines of Mysore where silver is found in association with gold.[2] Silver may be extracted from argentiferous galena deposits. In India there are deposits of this type and a few of them have been worked for quite a long time. We find such a deposit in Ajmer and there are some in Southern Afghanistan.[3] Silver may have been imported from the Panjshir Valley, Herat and the regions to the north of the Oxus.[4] We have noted above Strabo's reference to silver-sources in the Punjab.

The earliest gold objects, other than those of the Indus Valley culture, have been unearthed in the Taxila region. Some of them have been found in the Bhir Mound and are dated from the fifth to the early second centuries B.C., and most of the rest come from Sirkap strata.[5] Most of the articles of jewellery found in Sirkap are foreign in design. They are different from the jewellery represented in the reliefs of Bharhut and Sanchi and other monuments of the Early Indian School. Greek, Graeco-Roman and sometimes Scythic and Sarmatian influences are quite prominent in them. Only a few Indian devices on foreign designed objects—the *swastikā* on some amulets (nos. 85, a—d) and the *Nandipada*[6] on a hair pin (no. 101) and a torque (no. 147)

[1] Marshall, *op.cit.* p. 620, Forbes—*op. cit.* pp. 149-50; Schoff, *op.cit.* pp. 258-59.

KG

[2] Coggin Brown and Dey, *India's mineral wealth.* p. 140.

[3] Forbes, *op.cit.* pp. 188-89. [4] Marshall, *op.cit.* p. 607.

[5] Marshall, *op.cit.* p. 616.

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[6] *Nandipada* or *Tri-ratna* is a device adopted by the Buddhists as a symbol of their trinity—the *Buddha*, the *Dharma* (law) and the *Saṁgha* (religious order). This monogram has been profusely used in many Buddhist monuments. Some Kuṣāna coins also bear this symbol. This particular hair pin contains motifs of *tri-ratna* as well as a crescent which is characteristically Greek.

are found here. This fact raises the interesting point about the persons behind these crafts.

The outside influences on designing and technique of most of the jewellery found in Taxila are so vivid that one can easily take these objects as products of foreign hands. The political condition of this city on this borderland of India has always been unstable and foreigners must always have been present in considerable number and formed an important part of the population there. Marshall thinks that the jewellery found at Sirkap proves the extent of foreign influence on craftsmanship as well as design. It is quite possible that most of the craftsmen in this area were foreigners, perhaps predominantly Greeks. The few Indian devices on objects of basically foreign type prove that very slowly a fusion of culture was going on.

The moulds and dies found in Sirkap show that the technical processes followed in Taxila were usually Western. Moulds are made of stone and they are of two types, closed and open, for solid and hollow pieces of jewellery. Dies are either of copper or of bronze. The techniques of granulation and filigree were employed. We find also that the art of incrusting jewellery with gems was known to the goldsmiths of Taxila. Whether this art is indigenous to India or came from outside is not definite. After Alexander's invasion of India the Mediterranean people came to know of it.[1] We learn from Quintus Curtius that the Indian King Sopeithes, who splendidly entertained the Macedonian king, was wearing ornaments studded with jewels and beryls.[2] That this luxury gradually spread to the courts of Alexander's successors is known from Cicero.[3] So it might be that the art of incrustation originated in India.

We know almost nothing about the technique followed by jewellers in other parts of India, as neither their implements nor considerable pieces of jewellery have been excavated. Only in the *Arthaśāstra* it is stated that goldsmiths' techniques are of the following kinds:

*kṣepana* (incrustation),
*guṇa* (thread making),
*kṣudra* (making ordinary solid and hollow ornaments).

[1] *ASR*, 1902-1903. p. 191. (Marshall, *Buddhist gold jewellery.*)
[2] *IX.* 1.5.
[3] *The Varrine orations*, IV. 62.

From the contemporary sculpture it is obvious that goldsmiths knew other finer techniques. The design of some of the jewellery pieces found at Taxila goes back to the Greek type of the sixth or fifth century B.C., though most of them seem to have been particularly fashionable there in the first or second century A.D. The Greek practice of filling hollow ornaments of gold foil with solid substances like wax, pitch or mastic was followed by the goldsmiths of Taxila. Some hollow gold bangles with trumpet-shaped ends have been found. Though this type occurs in archaic Greece, it did not survive there. Probably the same design evolved in India independently.[1]

The torque with the Tri-ratna device mentioned above is neither Indian nor Graeco-Roman. It was used by people of the Scytho-Parthian stock.[2] It is obvious that these people also contributed to the cultural fusion evolving in Taxila during the early Christian period.

The ornamentation of a few pieces of jewellery found in Sirkap with "the bands of lotus resettes, sinuous vine borders, full blown lotuses centred with human busts etc." bears considerable similarity to the reliefs of Early Indian sculpture. The Indian character of these objects can be claimed, provided we remember that some motifs used in the sculptures of the Early Indian School, like the honey-suckle pattern on the Capital of the South-Gateway or the grape on the West Gateway of the Great Stūpa of Sanchi prove outside, possibly Assyrian, influence.[3] Thus we find that through the amalgamation of the Mediterranean, West Asian and Indian elements, which are traceable in the designs and techniques of the Taxila jewellery, a hybrid culture slowly developed in the north-western part of India, and to some extent affected the artistic creations done in the remote interior of the country as revealed in the sculpture there.

The gems used for the jewellery of Sirkap seemed to have come from all parts of India and near by countries. The fame of Indian precious stones reached the outside world quite early. The fine stone out of which the Babylonians made seals came from India.[4] Later; Pliny wrote: of lands, India produces more

[1] Marshall, *op.cit.* p. 634.
[2] Wroth, *B.M. Catalogue of Greek coins of Parthia*, passim.
[3] Marshall, *A guide to Sanchi*, p. 45.
[4] Hendley, T.H., *Indian Jewellery*, p. 159.

gem-stones than any other.[1] We shall discuss the considerable export of Indian semi-precious stones in our period in the next chapter on trade. There is no doubt that from Barygaza (Broach), the chief centre of the export of gems and stones, many of these objects were brought to North-western India. We give here in tabular form the chief semi-precious stones used in the jewellery of Sirkap and their probable sources of supply.

Garnet—Ajmer, Merwar, Jaipur, Udaipur, Kishangarh (Rajasthan); Mudapala (Orissa); Nilgiri, Salem, Tinnevelly (Madras); Trichinapolly (Kerala); Rupshu (Kashmir).

Agate[2]—in association with Chalcedony—Rajpipla (Rajasthan); Ahmedabad, Morri (Gujerat); Jabbalpur (Madhya Pradesh); Rajmahal (Bihar); Rudok (Kashmir); beds of the Krishna, Bhima and Narmada.

Jade—Rewal (Madhya Pradesh); the Pamirs, Karkash Valley (Eastern Turkestan); Northern Burma.

Rock crystal—Mianwali (Punjab); Jaipur, Tonk, Rajpipla (Rajasthan); Tanjore (Madras); Kathiawad (Gujerat); beds of the Krishna and Godavari.

Amethyst—Sutlej Valley (Punjab); Nellore (Madras); Coimbatore (Madras); Palghat (Maharastra); Rajmahal (Bihar); Ceylon.

Lapis Lazuli—(Lazurite)—Badakshan (Afghanistan); Tibet.

Turquoise—Nishapur (Iran).

Beryl and Aquamarine—Coimbatore (Madras); Melkote (Mysore); Nellore (Madras); Ladakh (Kashmir); Ajmer, Merwar (Rajasthan).

Jasper—Bellary (Mysore).[3]

These are the modern available sources. It is impossible to

[1] *op. cit.* XXXII, 76.

[2] Pliny, *op.cit.* (XXXVII.8) refers to agate (myrrhine) vessels coming to Rome from Parthia and Carmania. As until the first century A.D. when direct connection was firmly established between the East and the Mediterranean countries by sea, the Romans had to depend on the Parthians who controlled both the land route and the route *via* the Persian gulf. Often the Parthians misled the Westerners by deliberately supplying them with false information. It is quite likely that the agate vessels were exported to the West from Broach (Schoff, *op.cit.* p. 194). Pliny did not always take the trouble of verifying the information he gathered.

[3] Coggin Brown and Dey, *op.cit.* pp. 575 f; Marshall, *op.cit.* pp. 476 f.

determine which of them were worked in ancient times. As India had a vast foreign market in semi-precious stones in the early Christian period, there is no doubt that many of the above mentioned sources were tapped and a little portion of the product made its way to Taxila.

Besides these stones sometimes glass paste was used for jewellery in Taxila. We find on the stone or glass bezels of some rings various devices. Some of these devices, generally poor in workmanship, are copied from the contemporary coins of the region.

Hardly any gold jewellery of skilful craftsmanship has been unearthed in any other part of India.[1] This rather goes against the picture we get from literary sources about the use of gold in India. Megasthenes was impressed by the simple life and rich gold jewellery of the people. We find many beautiful descriptions of fine gold ornaments worn by the heroes and heroines of the dramas of Aśvaghoṣa, Bhāsa and other literature of the period. In the reliefs of Bharhut, Sanchi and other monuments of the Early Indian School, people of ordinary rank are portrayed with pieces of jewellery on their persons. Poorer sections of the people no doubt used ornaments of bronze and other materials of which we have archaeological evidences but we think that the accounts of the prodigious use of gold by the Indians are not all myths. The reason for the lack of finds inside India perhaps lies elsewhere.

Compared with the amount of excavated objects in Taxila, the finds in other parts of India, the Gangetic valley and Western India, are insignificant. This is the case not only with objects of precious metals but with many other types of materials also. It has been suggested that the Indian system of cremation deprives us of archaeological evidences.[2] It may also be due to the geographical factor. In the north-western part there have often been sudden invasions, especially in our period. At the time

[1] So far as we can gather only a few gold talismans have been found in Bihar, which perhaps could be attributed to the later part of our period. These are imitated after the gold coins of the Kuṣāṇas who were ruling this region in the second century A.D. Altekar and Mishra *op.cit.*, pp. 130-31.

In the burial mounds at Lauriya Nandangarh in Bihar a gold leaf with the impression of a female figure interpreted as the Earth goddess was found which is assigned to the seventh or eighth century B.C. by the explorer Bloch. But Marshall thinks that it belongs to the Maurya or post-Maurya period. *C H I* I. p. 616.

[2] Smith, *History of Fine Arts in India and Ceylon*, p. 354.

of invasions people had either to die or to flee, leaving behind almost all of their possessions. So we find a huge quantity of metallic and other objects piled up in different strata there. New cities were rapidly built over the ruins of the defeated people which contained many useful and precious objects. But down in the plain it was different. There have been invasions and wars there but neither very frequently nor sweepingly. People might have shifted for other reasons also. But they always found time either to carry their valuable possessions with them while leaving the centres of trouble. So when new habitations were built up in these places nothing except some pottery fragments and a few other objects of little value were left beneath them. We think this may be one of the reasons why valuable jewellery or other useful materials have not been unearthed in sufficient quantity in interior India. Of course things remain inside the earth for other reasons, such as, hoarding which account for excavation of large number of Kuṣāṇa gold coins in different parts of Northern India.

In Sirkap silver jewellery has also been found. The techniques and designs are similar to those of the gold jewellery discussed above. Some pieces of silverware have also been found. Some of these silver objects, according to Marshall, are local products judging from their workmanship and the Kharoṣṭhī character inscribed on them.[1] These characters might have been inscribed in Taxila after bringing these articles from abroad. But there are some numerals also engraved on them in Kharoṣṭhī which suggest the local manufacture of these products. These figures indicate the weight of these articles and they were inscribed to check scraping of silver from the interior. It is likely that these numerals were engraved where these objects were manufactured.

From the style of some other pieces of silverware it is obvious that they were imported from the Mediterranean countries and perhaps from Parthia also. We learn from the Periplus (38, 39) that plates of gold and silver were imported into the Parthian territory in Western India through Barbaricum (Shah Bandar) and these were taken to further north to Minnagara (Bahmanabad) from where they could have been brought to Taxila.[2]

The standard of local silver products in Taxila was not high

[1] Marshall, *op.cit.* p. 608. [2] Schoff, *op.cit.* pp. 165-66.

and manufacturing processes were similar to those employed in working copper and bronze.

Silver finds in other places of Northern and Western India are practically nil, except for a few silver coins of a rather debased type.

*Textiles*

Weaving is one of the most ancient crafts of India. The materials used were mainly cotton, wool, flax, and silk. It is rather surprising that cotton (kārpāsa) out of which most of the cloths were made, is not mentioned in the indigenous literature till the fifth century B.C.,[1] though the cotton plant is indigenous to India.[2] But the use of cotton can be traced right back to the days of the Indus Valley culture. Microscopic examination of the remains of the woven material found wrapped up with copper objects proves that the Indus Valley people knew how to make cotton cloth of plain weaving.[3] Perhaps raw cotton and cotton cloth were exported to Sumer by the Harappans.[4]

"The deep, heavy, moisture-retentive black soil (regur) of the Deccan Iavas" comprising the regions of Madhya Pradesh, Gujarat, Maharasthra, Mysore and Kerala has provided the largest quantity and the best quality of the Indian cotton from very ancient times.[5] At present cotton in Panjab and Sind is entirely an irrigated crop, but there are reasons to believe that it was a staple product in this area in early times.[6] Cotton in large or small quantity is grown in all other parts of India.[7] From the *Arthaśāstra* we learn that the seats of the cotton industry were in *Aparānta* (Kankan), *Kaliṅga* (Orissa), *Vaṅga* (East Bengal), *Vatsa* (Kausambi) and *Mahiṣa* (Jabbalpur) which suggests that cotton was cultivated in many parts of the country in its time.[8]

The Western classical writers of the earlier and the contemporary period were much impressed by the Indian cotton products.

[1] *Pāṇini*, IV. 3.143. Āśvalāyana, II, 3, 4, 17.

[2] Spate, *op.cit.* p. 224

[3] Mackay, *Further Excavation at Mahenjo Daro*, pp. 441-42, 591.

[4] Gordon, *op.cit.* p. 74;

Sayce (*Hibbert Lectures*, 1887, pp. 136-38) thinks that the muslin mentioned in an ancient Babylonian list of clothing was exported from Western India.

[5] Spate, *op.cit.* p. 224. [6] Schoff, *op.cit.* p. 172.

[7] Watt, *Commercial Products of India*, pp. 596 f. [8] *II*, Ch. 11.

Herodotus refers to the clothes used by the Indians as being made of wool grown on wild trees, and he declares that the fabric of cotton is superior in beauty and quality to that made of wool.[1] About this product Alexander's admiral Nearchus writes that "the linen from trees is of a more shining white than any other linen unless it be that the (Indian) people themselves being dark make the linen appear all the whiter. They have a tunic of tree-linen down to the middle of their shins and two other pieces of stuff, one thrown about shoulders and one twisted round their heads."[2] Theophrastus of late third century B.C. writes that the Indian cotton plants have leaves like those of the mulberry and they are arranged in rows which from a distance look like vines though the similarity does not go far.[3] Pliny[4] also compares Indian cotton plants to vines and according to Arrian[5] Indian cotton is brighter and whiter than that of other places.

That cotton was much used in the period under discussion is known from numerous indigenous sources. *Manu* attributes a special purity to this material. It prescribes that a *brāhmana's* sacrificial thread should be made of cotton, that of a *kṣatriya* of flax and that of a *vaiśya* of wool.[6] A Jain text of the first century A.D. mentions various types of cotton, blue cotton, common cotton, Bengal cotton.[7] From a later source *Amarakośa*, perhaps of the fourth century, we also learn of several kinds of cotton, (1) *tuṇḍikerī*, (2) *vādara*, (3) *samudrānta* and (4) *kārpāsa*; we cannot identify these types as at the present time as there are many more varieties of the cotton plant.[8]

In the epics and other secular literature of our period specific mention of cotton or cloths made of cotton is not frequent. These texts do not generally describe the life of the commoners who are the main users of cotton products. Sometimes also, it is not possible to know from the references what materials the clothes were made of. Both in the Sanskrit and Pali literature

[1] *III*, 106. [2] *CHI*, p. 412. [3] *History of plants*, IV. 4.8-10.
[4] *XII*. 38-40. [5] Indika, 16.1.
[6] II. 44. Gopal's view (*JESHO*, IV. pt. 1. p. 61.) that clothes made of cotton were not considered to be pure could not be supported from this evidence.
[7] *Acārañga Sūtra*, II, V. 1.
[8] Ray, J.C. (*JBORS*, III. Pt.2, pp.206-207) thinks that cotton fruit (1) had a pointed apex, (2) was globose, (3) was grown on the western coast and (4) was of the most common type.

we meet terms like "Benaras cloth" which might mean silken cloth or cloth made of cotton or any other material as well.[1]

We have already seen that cotton cloth was manufactured in practically all parts of Northern and Western India.[2] The most important seats of production were perhaps Bengal, the area around Benaras, Gujarat and Gandhāra.[3] From the *Arthaśāstra* it is evident that by this time Bengal has attained eminence as a centre of textile industry, producing cloths of linen, wild silk and cotton.[4] Bengal muslin which the Periplus (63) refers to as Gangetic had already become well known and was sent abroad.[5] Various types of cotton cloths—*monachê* (*fine*), *molochinê* (coarse and dyed with hibiscus), and *sagmatogênê* (used for stuffiing), all products of Western India, had also a good market outside. From Ujjayini and Tagara considerable quantities of these materials were exported to Arabia, Socotra and Egypt.[6] The different parts of the Roman Empire provided the biggest market to Indian cotton products, as is proved by the discovery of a large number of Roman coins in cotton-growing areas of India. That the quality of Indian goods was very high is obvious, as there was strong competition from Egypt and other Mediterranean countries.[7]

Considering the region where the Vedic people settled first it is natural to find reference to the use of wool (ūrnā) in their oldest literature.[8] In the later texts we meet various terms for woollen materials—*ūrṇāja*, *rāṅkava*, *kambala*[9] —which suggest that different kinds of wool were used. From the varieties of *kambala* mentioned in *Pāṇini* and the *Arthaśāstra* it is evident that wool-weaving was fairly developed in some parts of the country.[10]

[1] *Jātakas*, IV. 352; *Divyā* 11. pp. 388 (17), 391 (26). [2] *Supra*, p. 132.
[3] *IA*, *LIX*. p. 161. (Codrington, *The Culture of medieval India as illustrated by the frescoes of Ajanta*).
[4] *II*. Ch. 11; *Dacca History of Bengal*, I. p. 161.
[5] Schoff, *op.cit*. pp. 256 f.
[6] Periplus, 6, 48, 51; Schoff, *op.cit*. pp. 72-73, 179-80; Chandra, M., *JISOA*, VIII. p. 188.
[7] Warmington, *op.cit*. pp. 210-12. [8] *Ṛg Veda*, I. 126.6; X 75.8;
[9] *Kambala* usually means blanket; Chandra, M., *op. cit*. p. 190.
[10] *Pāṇini*, *prāvāra* (light variety) III. 3.54, *pāṇḍu—kambala* (used for mounting

We have noted above *Manu* prescribing that the sacred thread worn by a *vaiśya* should be made of wool. Due to the limited use of wool in a tropical country like India references to wool or woollen materials are not frequent.

The best wool in India is made from Tibetan goats. The Kashmiri traders have been importing this material from the upper Tibet since ancient days. Wool is also brought to India from Persia and Afghanistan.[1] The *Mahābhārata* mentions that the *Śakas* and *Romakas* of North-western India and the *Ābhīras* of Gujarat brought wool as presents to the Pāṇḍavas.[2] The best quality of indigenous wool is still found in the North-western Frontier area and Panjab, and the hilly parts of Uttar Pradesh.[3]

The *Jātakas* mention *kambala* of Uddiyāna, which is the ancient name of Swat. Swati *kambala* is still well-known.[4] Nepal is also a very old centre of wool-weaving. *Manu* speaks of *kutapa*, which, according to the commentator Kullūka, is a soft blanket from Nepal.[5] An eight-fold Nepali blanket, called *bhiṅgisī* is mentioned in the *Arthaśāstra*.[6]

Wool and woollen products were also exported. The Periplus refers to the export of furs from the port of Barbaricum on the Indus. Perhaps this product came from South India.[7] But there are reasons to believe that wool from North-western India was sent to Egypt and Syria in the early Christian period. The item *marococorum lana* in Justinian's Digest list of imported goods is, according to scholars, raw wool of the shawl-goat of the Karakoram region which was exported to the Mediterranean world through West Indian ports.[8]

*Kauśeya* or silken cloth is perhaps first mentioned in *Paṇini*.[9] There are stray references to it in the early Bhuddist works;

on chariots, royal throne, etc.) IV. 2.11, *paṇya-kambala* (standard cloth) VI. 2.42; Agrawala, *op. cit.* p. 232. *Artha.* II, ch. 11. *kambala* (coarse), *kaucapaka* (used by cowherds), *kulamitika* (head dress), *saumitika* (husting on a bullock), *turaṅgāstaraṇa* (husting on a horse), *samantabhadraka* (husting on an elephant), *Varṇaka* (coloured), *talicchaka* (blanket used in bed), *vāravāṇa* (coat), *paristoma* (large blanket), *bhiṅgisi* (very thick and rainproof) *samputikā* (trousers), *chatur-śrikā* (a small rectangular blanket), *lambarā* (curtain or wrapper) etc. We have followed Shamsastry's translation. There is no doubt that some of these varieties are different only in name.

[1] Watt, *The Commercial products of India*, pp. 1122-23.
[2] *II.* 50. [3] Watt, *loc. cit.* [4] *IV.* 352; Agrawala, *op.cit.* p. 233.
[5] *V.* 120. [6] *II.* Ch. 11. [7] 39; Warmington, *op.cit.* p. 157.
[8] Warmington, *op.cit.* p. 160. [9] VI. 3.42.

thus we find a *bhikkhu* is allowed to wear a mantle made of silk.[1] There is no doubt that silk was very rarely used up to this time. In the *Arthaśāstra* and the contemporary literature we find numerous terms besides *kauśeya* which are generally held to mean silk, such as, *patrorṇa, cīnapaṭṭa, cīnāṁśuka, kīṭaja, paṭṭa, paṭṭāṁsuka, cinakauśeya* etc.[2] This suggests a variety of materials used for producing silken cloths.

There are, broadly speaking, two varieties of silk. One is the product of worms fed on mulberry leaves which is true silk. The other is the product of wild insects, of which only three are commercially important for India—*mugā, tasar* and *eri*.[3] Whether the mulberry is an indigenous Indian plant or imported from Central Asia and China through Northern and North-western India is difficult to determine.[4] We do not believe that the problem can be solved by relying on terms like *cīnāṁsuka* and *cīnapaṭṭa* used in the *Arthaśāstra*. Even if these terms are to be attributed to silk brought from China that does not prove that silk of mulberry-fed worms was not produced in India before or during that time. There is no direct reference to the coming of Chinese silk to India before the first century A.D. when it appears chiefly as a commodity on transit.[5]

In any case the mulberry worm has been reared in India for a long time in Northern and Eastern India and insects of the wild variety are generally found in North Bengal and Assam,[6] the area, as we learn from the *Arthaśāstra*, where *patrorṇa* variety of silken cloth was manufactured.[7]

The influx of the Chinese silk coming through the North-western and North-eastern trade routes must have given an impetus to the domesticated silk industry in India and there is no wonder that the Indian silk along with the better variety from China was reaching Rome in the early period of the Christian era.[8]

In the ancient world a very widely used material for textile

[1] *Mahāvagga*, VIII. 1.3.6.

[2] *Artha*., II, Ch. 11; *Mahā*., II, 50; *Manu*, V. 120; *Divyā*, p. 316 (25)

[3] Watt, *op. cit.* p. 992. [4] Watt, *op.cit.* p. 993.

[5] Periplus, 39, 64. Warmington, *op.cit.* pp. 176-77.

[6] Watt, *op.cit.* pp. 993, 1002 f.

[7] *Artha*., II. 11, *Dacca history of Bengal*, I. pp. 654-55. *Patroṇa*, which in the *Amarakośa* is defined as a bleached or white *kauśeya* seems to be a variety of wil dsilk (Ray, J.C. *op.cit.*, p. 214).

[8] Warimngton, *op.cit.* p. 177.

was flax. From the early Indian literature we come to know of a cloth called *kṣauma*,[1] which according to many scholars, is linen made of *kṣumā* or *umā* (flax) and *atasī* (linseed).[2] But this interpretation of *kṣauma* as linen is doubted as for a long time linseed has been used for pressing oil and not for making cloths.[3] It has been suggested that *kṣauma* was made from *chuma* grass (Chinese Boehmeria Nivea) which the Chinese used for manufacturing cloths in the Han and T'ang periods. This kind of grass is still found in Northern Bengal and Assam.[4] Others think that *kṣauma* was originally silk, rhea or calotrapis.[5] The *Amarakośa* is not very explicit about it except stating that *kṣauma* is an example of fibre made from bark. But we know from the *Arthaśāstra* that in its time linseed was used as fibre as well as oilseed.[6] Kullūka, the commentator of *Manu*, explains *kṣāuma* as a cloth made of *atasī* fibre. It seems therefore that flax or linseed fibre was used as one of the materials for textile industry in ancient India whether it was called *kṣauma* or not. Linseed is grown for over a long time in all parts of the country.[7] The Periplus refers to the import of linen through the ports of Western India. Perhaps it was brought from Egypt.[8]

Hemp (*saṇa* and *bhāṅg*) was also used for making cloths in the period under discussion.[9] We meet largely varied names of textile products in the contemporary literature though many of them cannot be properly identified.[10] They, however, suggest

[1] Right from the Vedic period we find many references to *kṣauma* or *khoma* in the Sanskrit and Pali literature. Quite a few of the texts of our period mention it. *Manu*, II, 41, V. 141; *Ācārāṅga sūtra*, II. 5.1.1; *Rāmāyaṇa*, II, 6.28, II.8. 7; *Mahābhārata*, II. 27; *Divyā*, pp. 316 (23-27), 577 (21-22)

[2] Vedic Index, I, p. 212; Agrawala, *op.cit.* p. 125; Ray, J.C., *op.cit.* pp. 187 f.

[3] Watt, *op.cit.* p. 721.

[4] Agrawala, *Harṣa Charit—Ek Sāṁskṛtik Adhyan* pp. 76-77.

[5] Watt, *op.cit.* p. 721.

[6] II. 15 and 17. In II. 11 it mentions *kṣauma* as one of the textile products of Bengal.

[7] Watt, *op.cit.* 720.

[8] Periplus, 39, 49 Warmington, *op.cit.* p. 264.

[9] *Ācārāṅga Sūtra*, II. V. 1.1.; *Divyā*, pp. 83 (21-25), 194(3), 463 (8), according to this text cloth made of *saṇa* was used by the cultivator class; *Manu*, II, 41.

[10] *Divyā* and *Aṅgavijja* both belonging to the later part of our period refer to many kinds of cloths. We have mentioned some of them already. Here, a few more are cited:

a very high degree of skill attained by early Indian textile-makers.

The fineness of Indian garments is evident from the account of Megasthenes and the reliefs of the Early Indian School. It is likely that specialisation in the textile craft was attained to some extent even in the Vedic period, as is apparent from separate terms for weaver, embroider and dyer. Many of these terms are used only in feminine gender which suggest that women took an effective part in this craft in early India.[1] In a later text we find that the state superintendent of weaving is asked to employ women, mostly helpless, in his department.[2] We learn from the *Milindapañha* that a lady herself had carded (*piñjitam*), pressed (*kuñcitam*), beaten (*paṭṭitam*), cut (*kaṇṭitam*) and woven (*vāyitam*) a wrapper.[3]

It is not possible to learn much about the technical side of the craft from the literature. We only meet some terms like *tarku* (spindle), *veman* (loom), *tasara* (shuttle) by which the spinning and weaving operations were carried on in ancient India. *Divyāvadāna* gives a short description of the whole process of spinning and weaving. After ginning cotton wool is spun into yarn of even structure and fine quality. The weaver's wife prepares warp with starch of good quality and the weaver starts weaving with the usual movements of body.[4] Some other texts also throw some hints on starching of yarn before weaving to increase the weight of woven fabrics. The *Arthaśāstra* prescribes ten per cent increase in case of cotton, half per cent in case of linen and silk, and two per cent in case of wool.[5] *Manu* prescribes ten per cent increase without any discrimination.[6] Rice gruel was a popular starch used at that time. The dyeing of textiles also started very early in India. A fragment from Mahenjo-Daro shows that maddar (Rubia cordifolia) was used and this presupposes the knowledge of mordants. The reference to maddar (*mañjiṣṭha*) lac (*lākṣā*) and indigo (*nīlī*) is found in earlier literature.[7] The Periplus (36) mentions the import of purple.

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*Tuṇḍicela* and *kalpaduśya*, products of *kalpaduśya* tree, *Divya* pp. 215, 221; *phalaka* (made from some fruit fibre?) *haryanī* (golden cloth?) *op. cit.* 316; *padasāḍaga* (Chandra, M. has interpreted it as silken linen—Introduction p.40) *Angavijja*, Ch.9. P. 64 (141). The latter text also refers to various kinds of garments which we need not discuss here.

[1]Bandyopadhyaya, *op.cit.* p. 167. [2] *Artha.*, II, ch. 23.

[3] *IV.* 6.10. [4] *VII.* p. 83 (21-25) [5] *IV.* Ch.I. [6] *VIII.* 397.

[7]*Aitareya Āranyaka*, III. 2.4.; *Sānkhayāna Āranyaka*, VIII. 7; *Pāṇini*, VIII. 3.97, IV. 1. 42, IV. 2.2.

The art of dyeing improved gradually and in the early Christian period Indian dyeing became proverbial in the Roman world, as is evident from a reference in St. Jerome's translation of the Bible, made in the fourth century, where Job is being made to say that wisdom is more durable than the "dyed colours of India." Scholars think that the ancient Indians had mastered the complicated chemistry of dyeing cotton which was not the superficial use of pigments but involved proper permeation of the fibres.[1]

About textile materials archaeologists cannot help us much. But we may have a bare idea of the Indian textile craft of the period under discussion from the excavation at Bairat and Rangmahal, both in Rajasthan. In the former place a fragment of cloth has been found which was used to wrap a few punch marked coins. Minute examination of the fibre of this piece showed the presence of convolutions, which is a distinctive feature of cotton fibres. This piece of cloth, belonging to the early second century B.C., shows that the quality of textile production was quite good.[2]

In the Rangmahal excavations a few pieces of pottery with internal textile impressions were found. They give us some idea about textile-designs in this part of India in the later Kuṣāṇa period. Textile impressions on pottery are generally for external decoration. But in Rangmahal these impressions are always on the internal side of the pottery. Cloths were used as a manufacturing process of these objects. Plasticine impressions, which reproduced the designs of the cloth used, exposed a series of loosely woven fabrics of both coarse and fine qualities. The materials used were cotton, linen and jute.[3] Of course from these impressions we get only a few samples of textile designs

[1] Irwin, *Indian textiles in historical perspective* (In "*Textiles and ornaments of India*"—Ed. Wheeler, M) pp. 25-26.

[2] Sahni, *Archaeological remains and excavations at Bairat*, pp. 22-23, pl. IV (a). A square yard of this cloth would weigh 3.3 ozs.

It was woven from 20's and 16's yarns and it was not possible to determine which yarn was warp and which was weft. The number of threads to an inch was found to be 50 in lengthwise direction and 34 in the other.

Mr. K.D. Audsley of the College for the Distributive Trades, London, kindly went through these data. At present this type of cloth is used for printing and decorating. Poplin of medium quality is woven from 50's yarns. In any case this piece is not a sample of fine cloth of that time.

[3] Rydh, *Rangmahal*, pp. 201-202, pl. 52 (5-12).

of the time. There is no doubt that superior types of textiles were not used for the purpose of making pottery.

*Glass Objects*

The question of where the manufacture of glass first began has not yet been satisfactorily solved. Glass beads attributed to very early times, have been found in Egypt but two specimens unearthed in Babylonia which seem to go back about 2600 B.C. are held to be the earliest evidence of glass so far known. Whichever may be the native home of glass, glass vessels appeared first in Egypt sometime in the second millenium B.C.[1] The earliest documentary evidence of the technique of making various kinds of glass objects comes from Assyria. It is written on clay tablets of 668-620 B.C., which are possibly copies of earlier records.[2]

In the Indus Valley, which had close connection with Mesapotamian culture, no glassware was found; only glazed objects made of vitreous substances like steatite and faience were unearthed there.[3] It proves that the people of the Harappa culture had knowledge of techniques very similar to those of the manufacture of true glass.[4] But the authentic glass specimens found in India cannot be attributed to a date before the seventh or sixth century B.C. These are a few glass beads found in the earliest stratum of the Bhir mound. From the fifth century B.C. onwards different varieties of glassware come to hand.[5] The quality of these goods prove that glass making in this part of India had reached a high level by this time.[6] The largest number and variety of glass objects have been found in the Sirkap level.

In a village called Kapia near Basti of Uttar Pradesh a number of beads with fine threading holes, pendants and bangles, all made of glass, and glass lumps were excavated. On the ground of their similarity to the glass objects found at Piprawa in Nepal these

[1] Fossing, *Glass vessels before glass blowing*, pp. 5 f.

[2] Beck, *Glass before* 1500 B.C., pp. 14-15.

[3] Marshall, *MIC*, II. pp. 593-98.

[4] Brown and Dey, *op.cit.* p. 427.

[5] Beck, *Beads from Taxila, Archaeological Survey of India*, Memoir No. 65, p.28.

[6] Coomarswamy (*History of Indian and Indonesian Art*, p.10) thinks that highest standard in glass making was reached before Maurya period and this was never surpassed in early India. Finds at Sirkap disprove his view.

finds are held to be of the fifth century B.C.[1] But as the excavation at Kapia was not done in a scientific way the stratigraphical position of this discovery is not known, and this hinders its proper dating.[2]

The indigenous literary sources do not help us much in assessing the extent of the use of glass or the technique of its manufacture. A foreign source of our period, however, speaks very highly of Indian glass. Pliny states that the Indian glass was without any comparison and was made of pulverised crystals.[3] He also states that the people of India, by colouring crystal pieces found a method of imitating various stones, beryls in particular.[4] It has been claimed that as glass beads unearthed in the Bhir Mound bear a very close similarity to Mediterranean glass beads of the period from the ninth to the third century B.C., it might be that the former were either imported from the Mediterranean area or that trained hands came to North-western India from that part of the world.[5] *It is quite likely that similar techniques* developed in these two different places, simultaneously, and after Alexander's invasion mobility of goods and trained hands became easier. Imported glass beads, probably of Venetian origin, have been found in Ladakh.[6] Beads of the same variety of glass occur in the Sātavāhana stratum at Kondapur in Maharashtra.[7]

The glass objects found in Sirkap comprise bangles, flasks, bottles, tiles, beads and a few other miscellaneous articles. Most of the bangles are blue of different shades produced by metallic copper and cobalt. Other colours are amber, violet, black and yellow. The specific gravity varies between 2.3 and 2.6, which shows

[1] Nagar, *Amrita Bazar Patrika*, 14th August 1949.

[2] *AI*, VIII. p. 27. (Lal, *Excavations of some ancient Indian glass specimens*).

[3] Pliny, XXXVI. 66.

[4] Pliny, XXXVII. 77-78; Warmington, *op.cit.* p. 251;Kisa (*Das Glas im Altertume*. p. 105) has pointed out that though Pliny used the word rock crystal out of which the Indians manufactured glass, he must have meant quartz still now used for the making of glass in some parts of the world. Kisa also doubts the authenticity of Pliny's eulogistic statement of the skilfulness of the Indians in imitating precious stones for lack of specimens. However in Taxila we have found a few stones made of glass paste.

[5] Beck, *op.cit.* p. 24.

[6] *I A*, XXXIV, p. 209. (Francke, A.H., *Archaeological notes on Balu-Mkhar* in Western Tibet.)

[7] Dikshit, *Some beads from Kondapur*, pl. IV, 212.

that lead was not used.[1] Mid-rib (a narrow strip of white on the blue ground) and twisted cable types of bangles are quite common in Sirkap. Glass vessels or fragments of them, nearly all of the first century A.D. unearthed at Sirkap bear a close similarity to the glassware belonging to different parts of the Roman Empire of the comtemporary period. Samples of various kinds of glass-wares have been grouped as:

(*a*) lace glass;
(*b*) ribbed glass;
(*c*) swirled or marbled glass;
(*d*) blue and white cameo glass;
(*e*) mosaic glass;
(*f*) colourless translucent glass;
(*g*) millefiori glass.[2]

Ancient glass specimens found in other places are not many and only a few among them can be attributed to our period.[3] These are mostly beads and only in the south-eastern part of India in Arikamedur do a few glass bowls of post-Arretine type occur along with large quantities of beads and false gems made of glass.[4] The question arises as to what quantity of the glass objects found in different parts of India was imported from outside. Did the Indians know the art of glass blowing and the advanced technique of decolourising glass by using manganese and colouring it with various metallic oxides?

We learn from the Periplus that crude glass was imported into different ports on the western sea-board—Barygaza, Nelcynda, Muziris—and vessels of glass were brought to Barparicum at the mouth of the Indus, from where they could easily be taken up the river to Taxila.[5] Perhaps this crude glass came from Alexandria and it was used for making mirrors besides other articles.[6] Glass

[1] Beck, *op.cit.* p. 21. Only in two specimens from Taxila, described as a red opaque glass and thin drawn-out strips of haematinum and in one specimen from Ahicchatrā lead has been detected.

[2] Marshall, *op.cit.* pp. 684-85.

[3] *ASR*, 1919-20, p. 19, 1921-22, p. 125, 1922-23, pp. 157-58.

[4] *AI*, II, pp. 96-97, 102 (Wheeler and others, *Arikamedu: an Indo-Roman trading centre on the east coast of India*).

[5] 54, 56, 39.

[6] Schoff, *op.cit.* pp. 220-21; Warmington, *op.cit.* p. 271. In

vessels found in Sirkap and Arikamedu seem to be imported and these materials have close similarity in design to goods found in the excavated "customs deposit" in Begram, attributed roughly to the second and early third century A.D., which are undoubtedly from the Mediterranean countries.[1] Perhaps the latter objects were on their way to China from the glass factories of Alexandria, Tyre and Sidon, all well known during this period.[2] On the basis of this information and the chemical analysis of Taxila glasses.[3] Marshall thinks that till the close of the first century A.D. and probably for a few centuries later Indians were ignorant of the art of glass-blowing or of making any but the simplest of glassware such as bangles, tiles or beads. Other glass objects came from the West.[4] But the interpretation of the analysis of the Taxilan glass objects made by Marshall's chemist has been questioned. According to Varshney the origin of these glass objects was probably quite distinct from the Egyptian, Babylonian and Roman antique glass. He finds that except for a piece of Babylonian glass from Nippur of about 250 B.C. not a single antique glass specimen of West Asia and Egypt seems to be similar to the glass specimens of Taxila in its chemical properties.[5] The

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ancient time polished disc of metal was generally used as mirror. Pliny (XXXV. 66. 193) refers to a manufacturory of mirrors of glass at Sidon. Glass mirrors were coated with tin. But as glass manufactured in that time was too defective to give a good reflective surface mirrors made of glass were not much used. (Encyclopaedia of Britannica and Chamber's Encyclopaedia).

[1] Hackin, *Recherches Archéologiques à Begram*, Chantier No. 2, 1937, passim.

[2] Glass in Roman times had reached technical perfection in Syria and Egypt and had a market in all parts of Asia. A glass vase with the head of Athena of the second century B.C. has been found in Honan (Rostovtzeff, *Social and Economic History of the Roman Empire*, p. 513

Some scholars think that as large quantities of glass gems have been found in Arikamedu and as the *History of the Later Han dynasty* (Chavannes's translation Ch.118) reports that "the Indians are in communication with Ta-Chin and get gems from there" it might be that Arikamedu was an *entrepôt* on the China route. (Needham—*Science and civilisation in China* Vol. I. p. 200). But it is difficult to ensure which part of India the Chinese source refers to, Roman glass, as we have seen above, has been found both in the North-western part of India and in the South-eastern part, Arikamedu.

[3] *ASR*, 1921-22. p. 125, 1922-23, p. 158.

[4] Marshall, *op.cit.* p. 685.

[5] This view of Varshney (*Glass Industry* 1950) is taken from Lal's article (*AI*, VIII. p. 12). The reference is inadequate and we have not been able to

silica and acidic oxide contents of the Taxilan glass are comparatively low. But this analysis does not solve our problem. Unfortunately spectrographic analysis to determine the key elements of a glass and the spectro-photometric method of determining the elements used for colouring have not been used in India.

However, no glass vessels of the design we find in the objects unearthed in Sirkap have been found in any other part of India except in Arikamedu. But finds in the latter place were undoubtedly either imported from Roman factories of the Mediterranean area or manufactured there under the supervision of Roman technicians.[1]

From the fine colouring of the indigenous glass objects found in different parts of India and the low specific gravity of them, it is obvious that the Indians had mastered the chemical side of glass technology thoroughly.[2] But to establish their knowledge of the art of glass blowing which was learnt shortly before the Christian era[3] and brought a revolution in glass production we shall have to wait for new excavations.

In ancient days glass was a rare material and it was another form of ornament. In the procession held in honour of Ptolemaeus Philadelphos II we find a special carriage carrying gold and silver vessels, jewellery and two glass casks. It was the same in early India also. Gems made of glass are mentioned in early Indian literature. But so far as we can gather from the available evidence it seems that the craft of glass making in India remained in the hands of the "smith bellowing his hearth" before the technique of glass blowing was imported from Mediterranean countries.

trace Varshney's original monograph or article. It is not clear from Lal's article whether Varshney examined all the glass objects of Taxila found in different strata. So Lal's rejection of the "Assyrian-recipes" of glass making in North-western India we cannot accept fully.

[1] *AI*, II, pp. 19 f. (Wheeler and others, *op.cit.*)It has been held that the Romans had their own establishment in South India and they started local branches of their own factories and employed the Indian labour to their own benefit.

This view is also shared by Jouveau-Dubreuil (*Bulletin de L' Ecole Francaise d'Extreme-orient*, XL (1940) pp 448-50). But some scholars object to this hypothesis. They think that the Indians had enough aptitude for creating an industry to imitate the luxury objects imported from the Mediterranean world. (Filliozat,—*Les Relations Exterieures de L'Inde* (1), p. 23).

[2] *AI*, VIII, pp. 17 f. (Lal gives here a short summary of the chemical analysis of the Indian antique glass).

[3] Vávra *5000 years of Glass Blowing*, p. 36.

*Miscellaneous*

Various other materials such as clay, stone, stucco, bone, ivory and shell were also used by craftsmen of the period under discussion. Specimens of objects made of these materials have been found in Taxila and other parts of Northern and Western India. We shall not discuss these crafts in detail but mention here a few points only.

The "Red painted pottery" which roughly covers our period demonstrates a high standard of workmanship and it seems Marshall's comment on the slight artistic merit of the Indian pottery of this time (he specifically refers to the objects of Taxila of the Śaka-Parthion period)[1] is not justifiable. Foreign influence is quite vivid in the shape and structure of a large number of pottery works found in North-western region. Specimens of 'Arretine' ware, amphora and rouletted black ware of the Mediterranean countries have been unearthed at Arikamedu but how far they influenced Indian pottery is debatable.[2]

Ivory was much used for the manufacture of domestic objects as well as luxury goods. The best examples of ivory works of the period under discussion have been found in Begram. These are—a few plaques which were originally used as lids of cosmetic boxes. The variety of subjects and treatment is immense and the technique employed is one of extreme delicacy and sophistication.[3] We do not know in which part of India these plaques were carved. According to the *Jātakas* Benaras was one of the important centres of ivory-carving in early India.

Lastly we like to mention the use of a new medium-stucco—in the field of plastic art almost on a commercial basis. It came from Alexandria which was "the Western focus of plaster or stucco sculpture." By the second century A.D. this material from the Mediterranean world was passing through the Buddhist zone of North-western India. At that time there was a growing demand in this and adjacent regions for an easy medium to reproduce in large numbers the divine figure of the Buddha and stucco served this purpose well.[4]

[1] Marshall *op.cit.* II, p. 398. [2] *AI*, II, pp. 34 f.

[3] Stern, P., *Les ivoires et os découverts à Begram leur plance dans l'évolution de l'art de l'Inde* (in Hackin's *Nouvelles recherches archéologiques à Begram.*

[4] *Antiquity*, XXV, pp. 191-92. (Wheeler, *Archaeology and the transmission of ideas*).

*Organisation*

Efficient management and organisation are no less essential to the sound industrial life of a country than rich raw materials and skilful craftsmen available there. It is evident from the earlier and contemporary sources that industry in ancient India was organised by both State and private initiative. We meet terms such as *rāja-silpin* (royal artisan) and *rāja-kumbhakāra* (royal-potter) in the earlier literature,[1] but they seem to be artisans engaged to the royal household rather than employees of State-sponsored industries. From the *Arthaṣāstra*, however, it is obvious that State took considerable interest in organising and regulating industry by itself. The relation between employers and employees is systematically laid down, perhaps for the first time in early India, in this text.[2] The increase in the number of crafts which is proved by the varied list of artisans found in the *Mahāvastu* and the *Milinda-pañha*,[3] and the gradual development of a guild system within which many of these crafts were efficiently organised, seem to have loosened the control of State over the industrial life of the country; though from the injunctions of the *Dharmaśāstras* we know that State was expected to keep a watch over the condition of craftsmen.[4]

The individual entrepreneur, however, formed the basis of ancient Indian industry. The majority of artisans were self-employed people either working at their own place or visiting the houses of their customers.[5] In the period under discussion private concerns were sometimes conducted under the system of *sambhūya-samutthāna*, a kind of partnership.[6] The most prevalent type of combined enterprises of crafts were those organised into *śrenis* or guilds which formed a long-standing institution in ancient India. It is not possible to determine the proportion of different kinds of industrial organisations functioning in the period under

[1] *Paṇini*, VI. 2.63; *Jātaka*, V. 290.

[2] Bk. II. passim.

[3] *The Mahāvastu* (iii, 442-43) mentions 36 kinds of workers, and the *Milinda* speaks of 74 kinds of occupations, the majority of which are industrial. Compared to these the earlier sources refer to fewer crafts. From the *Digha Nikāya* (ii, 50) we learn of 24 kinds of trades and the conventional number of guilds of craftsmen and traders mentioned in the *Jātakas* is only 18.

[4] *Manu*, VII, 127-28.

[5] *Pāṇini*, V. 4. 95; *Jātaka*, VI. 189; *Pātañjali*, I. 4.54.

[6] *Manu*, VIII, 206-11; *Yāj*, II, 259-65.

discussion but from the available information we gather that the condition of the members of guilds, which were many in number, was quite prosperous.[1] We shall discuss this particular institution in detail.

In many of the literary sources of our period there are references to corporate or organised bodies of craftsmen and traders. It seems that the process of the hereditary professions organised on a family basis developing into consolidated industrial and mercantile institutions started fairly early. Terms like *paṇi, vrāta, gaṇa* and *śreṣṭhi*[2] used in the Vedas, could be interpreted to signify the existence at the time of the corporate professional which later came to be known as *śreṇī*. But we wonder how far the economic conditions prevailing in the Vedic period were suitable for the proper functioning of such organised institutions. The general picture of society presented in the Vedic literature seems rather primitive for a highly developed system of craft and trade guilds. The basis for the association of traders and craftsmen is common professional interest, and religious and other social motives got mixed up with this in early times. These characteristics, which are visible in the constitution of similar organisation of other countries require developed economic conditions which we do not find in Vedic India. It seems that the above terms signify the gregarious condition of Vedic society rather than the professional solidarity of that time. In Greece whence the guild system spread gradually to the different parts of the Hellenistic world, no such corporate organisation appeared before the fourth century B.C.,[3] by which time the economic development of Greece was more or less similar to that of the contemporary India.

[1] Sharma, *Śūdras in Ancient India*. pp. 179-80.

[2] *Paṇis* who were hostile to the Aryans have been interpreted as a body of strongly organised aboriginal traders. (Ludwig, *Der Rg. Veda* 3, 214-15).

*Vrāta* has also a tribal connotation. According to a later text, *Vrātas* live by violence and depredation (*Pāṇini*—V.2.21, V.3.113). Roth, however, thinks that both *Vrāta* and *gaṇa* refer to organisation similar to guilds. (St. Petersburg Dictionary.) In later times *gaṇa* was often used in connection with political and religious institutions. *Śreṣṭhi*, whose modern form *Seth* implies a rich businessman occurs in the Vedic texts in the sense of the headman of a guild or a similar body. (*Vedic Index*, II pp. 403-404.)

[3] Michell, H.—*The economics of ancient Greece*, pp. 141-42. The system flourished in Hellenistic times, especially in Egypt.

We believe that in India organised bodies of trade and crafts started to function a little earlier than this, sometimes between the later Vedic period and the fifth century B.C., the time generally assigned to the *Dharmasūtras*. These earlier law books state that the agriculturists, traders, rearers of cattle, money-lenders and craftsmen have their own laws and the royal power was instructed to abide by them.[1] Different professions were thus well enough organised by this time to prescribe their own laws and look after their own interests.

In Pāṇini's *Aṣṭādhyāyī* there are terms such as, *pūga, vrāta* and *saṁgha* which bear some cooperative connotation but they have more political and administrative significance rather than economic.[2] The evidence by which the development of guild life in early India can be traced is not at all satisfactory.

From the codes of Manu and Yājñavalkya and from the epics it appears that guilds held an important position not only in the economic but also in the political life of the country. Before we turn to them we shall rapidly review the evidence of the *Jātakas*, which are very informative about guilds and associate economic life of India, especially of its north-eastern part.

We have discussed the chronological position of the *Jātakas* in the introductory chapter. For reasons stated there we have not utilised them much. But as no other source deals with early Indian guilds so fully these stories are quite helpful for this particular topic at least as a context. It is obvious from the *Jātakas* that there was considerable localisation of trade and industry and different occupations became highly specialised. Along with the economic changes, the new ideas and social systems brought by the heterodox religions, Buddhism and Jainism helped the development of guilds. Both these movements were, by comparison with orthodoxy, popular and democratic and represented a revolt against the tyranny of the Brahmanism embodied in the organised priesthood of the times. The egalitarian principles of these religions received the support of merchants and artisans, whose position was not happy under the *Brahmans*, and tended to increase their power and authority. The interests of the industrial and mercantile classes and therefore of the guilds were greatly served by the heterodox religions.

[1] *Gautama*, XI, 21; *Vāsiṣṭha*, I, 17, XIX. 7.

[2] *V*. 3. 112-14.

Guilds as we find them in the *Jātakas* were of a well developed type. With the hereditary character of the different professions and the consequent specialisation, the localisation of industries and the institution of the *Jeṭṭhaka* (elder) these corporate organisations have been compared with the guilds of the Middle Ages of the West.[1] It is evident that social and economic conditions were sufficiently developed for the appearance of a sound guild system at that time.

From the *Jātakas* it seems that there were 18 kinds of guilds, though only four of them are specified—the wood-workers, the smiths, the leather dressers and the painters.[2] The conventional number 18 demonstrates the wide-spread guild system among craftsmen.[3] Localisation of trade had gone so far that places were named after different kinds of craftsmen—ivory carvers' street, carpenters' village, potters' village. Villages inhabited by a particular professional community create many economic and social problems. A sort of isolation from the rest of society is created. But this system goes well with the traditional customs of India with its "inborn tendency towards organisation, classification, schematism", and there is no doubt that ultimately it helped to a certain extent in the consolidation of the caste system based on profession.[4] This tendency to form groups based on profession and community continued throughout Indian history right up to the advent of the modern industrial system which with its completely different social attitude is challenging the old beliefs and values lovingly held by the people for ages.

The position held by the guilds in the ancient Indian society was so strong that even the *Arthaśāstra*, a staunch exponent of a centralised government holding rigid control over practically all the aspects of social life, could not ignore it. It recommended

[1] Fick, *Die Sociale Gliederung im Nordostlichen Indien zu Buddhas Zeit* (Eng. translation by S. Maitra, p. 284).

[2] *II*. 267, 314; *III*. 281; *IV*. 411; *VI*. 22, 427.

[3] Probably the other guilds were, as far as can be gathered from the different *Jātakas*, of workers in stone, weavers, potters, ivory-workers, dyers, jewellers, fishermen, butchers, hunters and trappers, cooks and confectioners, barbers, florists, sailors, rush-workers, basket makers (Rhys Davids, *Buddhist India*, pp. 90-96).

An exhaustive list of the guilds of ancient India from all kinds of sources has been compiled by Majumdar (*Corporate life in ancient India*, pp. 18-19).

[4] Fick, *op. cit.* 282-83.

many extra privileges such as, reserved quarters in a city, special leaves to members of the guilds.[1] The influence of the guilds is also known from the fact that the king is advised to borrow money from them in time of stringency.[2]

The literary sources as well as epigraphic records of the period under discussion bear ample evidence to the growing power of guilds. The codes of Manu and Yājñavalkya repeat what had been prescribed by earlier *Dharmasūtras* that the royal power should honour and preserve the laws of the guilds.[3] The property of the guilds should also be carefully protected.[4] Some of the guilds possessed vast property as people deposited money with them, as we learn from some inscriptions of Western India which are considered below. Guild-officers were held in high honour in the society. In legal proceedings their evidence carried much weight.[5] It seems that the king and the guilds in his realm were sometimes dependent on each other. In case of differences among the guilds the king had to intervene[6] and they in turn formed one of the major supports of the royal power.[7]

Thus we find that though the guilds did not derive their power from an outside agency and that the State and the groups such as, caste and guild had drawn distinct line of demarcation about their respective functions, sometimes their boundaries overlapped.

There are a few inscriptions of the early Christian era which prove that besides looking after the interests of their own members the guilds had sometimes to perform certain public functions. We learn from these inscriptions that there were some guilds other than those mentioned in the *Jātakas*, perhaps based on more specialised professions and they achieved reliability and gained considerable respect from the people. Large endowments were left with these institutions to act as trusts and bankers and this in turn tends to prove that the volume of business done by these

[1] *II*. Ch. IV. [2] *V*. Ch. II.

[3] *Yāj*, II. 192; *Manu*, VIII. 41.

Here *Manu* asks the king to preserve caste-laws. Though guilds ultimately helped to consolidate caste system we find that within the same guild there were people of different castes. This is confirmed by *Mitākṣarā's* commentary on *Yājñavalkya*—"*Śreṇi* is a group of people of different castes that subsist by the occupation of one caste" (Quoted from Kane—*History of the Dharmaśāstra*, II. pt.1, p. 68).

[4] *Yāj*., II. 187; *Viṣṇu*, V, 167; *Manu*, VIII. 219.

[5] *Yāj*., II. 30. [6] *Yāj*., I. 361. [7] *Mahā*., III. 248, 16.

organisations with the help of other people's money must have been considerable.

In one of the Nasik Cave Inscriptions of the early second century A.D. we find that an endowment of money was made by Usavadāta, son-in-law of the Śaka chief Nahapāna to support twenty Buddhist monks living in a near by cave.[1]

2,000 *kārṣāpaṇas* were invested with a guild of weavers at Govardhana, a place a few miles away from Nasik, at the rate of twelve per cent interest per year in order to provide clothes for these monks.[2] With another guild at the same place an investment of 1,000 *kārṣāpaṇas* was made with interest at the rate of nine per cent which would go to meet the minor expenses of these people.[3] Obviously these two guilds of the same craft and belonging to the same place were not of identical status. It also suggests that guilds sometimes broke up.[4] The inscription specifically states that only the interest could be spent. It is also recorded that this transaction has been proclaimed and registered at the *Nigamasabhā* (Townhall) according to the custom.

Another Nasik Inscription probably of the third century A.D. records an endowment of money with several guilds at Govardhanaby a lay devotee. He left 1,000 *kārṣāpaṇas* with the guild of *kularikas* (potters), 2,000 *kārṣāpaṇas* with that of *odayantrikas* (makers of "water-machines", probably well sweeps or water wheels for irrigation), 500 *kārṣāpaṇas* with another (illegible) guild and some (illegible amount) with the guild of oil-pressers. The endowment was to provide medicine for sick monks staying at a neighbouring monastery.[5] From the terms of the record it seems that "a perpetual rent is intended which will have to be paid by the guilds mentioned indefinitely."

A few inscriptions found in Jannar refer to the public acti-

[1] *ASWI* IV. pp. 102-103. No. 9; *E. I*, VIII, pp. 81-85.

[2] It is not clear from the text—*Vadhi paḍika śata* (increase by one in one hundred)—whether the rate of interest was for a month or for a year. It has been assumed to be a monthly rate, otherwise it seems much too low.

*Paḍika* which comes from *pratīka* has been held by Monier Williams, on the authority of *Pāṇini* (V. 1.25) and *Vārttika* (2), as equivalent to *kārṣāpaṇa*.

[3] We accept Sircar's interpretation of *kuśaṇamula* as *kṛsanamulyaṁ* (expenses for minor necessities), *Select Inscriptions*, p. 159, n.3.)

[4] Basham, *op. cit.* p. 218.

[5] *ASWI*, IV. pp. 103-104. No. 12; *EI*, VIII. pp. 88-89.

vities of the local guilds. In one of them it is reported that a devotee invests the income from certain fields with a guild for the planting of *karañja* and banyan trees, apparently in order to gain merit by helping travellers.[1] From another inscription we learn of a guild of corn dealers making a gift of a seven-celled cave and a cistern.[2] Gifts made by guilds are also known from Sanchi where the guild of ivory-carvers dedicated one of the piers of Southern Gate.[3]

Guilds of many other professions are known from archaeological sources. It seems that more and more professions, even minor ones, started organising corporate bodies. One of the Jannar Inscriptions refers to guilds of bamboo-workers and braziers,[4] who according to some Pali works belonged to the despised castes.[5] The Mathura Brāhmi Inscription of Huviṣka (second century A.D.) mentions a guild of flour-makers.[6]

Some of the guilds, as other big business organisations, had their own seals with particular emblems. Such seals made of clay have been found at Basarh and a few of them can be assigned to the late third century A.D.[7] Sometimes seals were issued in the name of a particular member of the guild but in what capacity is not clear from these seals.[8]

The inscriptions and seals mentioned above help us to obtain an integrated picture of the guild system prevailing in the later part of the period under discussion for we gather from them some further points other than those mentioned in the *Jātakas* and law books. They also bear evidence to the high localisation of trade and industry. The town of Govardhana where numerous industries were established was, it seems, an important centre of guilds of different craftsmen.

[1] *ASWI*, IV. p. 96. No. 24; *EI*, X (Appendix) p. 132. No. 1162.

[2] *ASWI*, IV. p. 94. No. 10; *EI*, X (Appendix) pp. 135-36. No. 1181.

[3] *EI*, II. pp. 92, 378.

[4] *ASWI*, IV. p. 97. No. 27; *EI*, X. (Appendix) pp. 132-3. No. 1165.

[5] *Aṅguttaranikāya*, II. 85; *Majjhimanikāya*, 93, 129. Some of the professions followed generally by the aboriginals were looked as low in early India. Bamboo-workers' profession was of this type. Fick (*op. cit.*, p. 324) thinks that as these professions required no acquaintance with metals they were regarded as low by Aryans, who used iron implements.

[6] *EI*, XXI. pp. 55f.

[7] *ASR*, 1903-4, pp. 101.f.

[8] *Indian Archaeology, A Review*, 1958-59, pl. IX B; 1959-60, pl. IX. 13.

We do not know, however, how guilds utilised the money invested with them. We know from the Periplus (6) that the textiles produced in Western India had a good market abroad.[1] Did the weavers' guilds similar to those of Govardhana expand and improve their own business with the money left with them to export their products outside the country? What did the guilds of other professions do? We have no means of answering these questions. We also wonder what was the position of middlemen or handling agents who usually gain from both producers and consumers, in a society where craftsmen were so compactly organised.

Taking all our sources in chronological sequence, we find, that though they represent particular parts of the country, they give us an impression of a gradual growth and consolidation of the guild system in India, with local variations, in the vitality of economic life, political happenings, standards of social behaviour such as, the rigidity of the caste system and similar features of society. This process of development continues beyond our period and in the time of the Guptas we find from numerous inscriptions that the guilds with their enlightened outlook were enjoying a position of increasing power and respect in society.[2]

So far we have discussed some of the major industries and the wide-spread system under which a considerable number of trades and industries functioned. While evaluating the industrial life of the period under discussion we should bear in mind a few important points.

The largest number and variety of industrial products of early India have been found in Sirkap but that does not necessarily suggest that there was a sudden increase in the demand for these goods in the Śaka—Parthian period. This particular area uncovered by the archaeologists is much larger than all the other strata put together.[3] Moreover we should not judge the situation in the whole country from the specimens found in one of its corners only. We have discussed above why the archaeological remains found in other parts are so few compared to those of Taxila. It cannot be definitely held that the industrial life of

[1] Schoff—*op. cit.*, pp. 72, 73.

[2] *CII*, III. pp. 68f, 79f.

[3] Ahmed, N., *The history and archaeology of Taxila* (University of London Ph.D. Thesis 1958) p. 215.

Northern and Western India as a whole was very flourishing in the first few centuries of the Christian era.

Another important question is whether craftsmanship underwent any significant change when Northern and Western India was under the political domination of the foreigners for a considerable length of time. Foreign influence is distinctly perceptible in most of the objects unearthed at Taxila. There is no doubt that owing to political and commercial reasons a considerable number of foreigners, the Scythians, Greeks, and perhaps some Romans, settled in this area. From the coins it is evident that Greek, often incorrectly used, was one of the major languages of Western Asia[1] including North-western India, in the period under review. We shall not go fully into the question of outside influence on the craftsmanship of the Taxila objects but it seems that the Graeco-Roman influence on them has been rather over-stressed by Marshall. Along with the industrial products of the Mediterranean countries under Graeco-Roman domination perhaps some craftsmen from this region also entered the north western corner of India and as a result they left their mark on the objects manufactured here. But we should not forget that the successive catastrophies in Iran since the dissolution of the Achaemenian empire often brought a considerable number of the metropolitan craftsmen of that country to the rising Taxila region.[2] So the Iranian influence on the arts and crafts of North-western India should be duly taken into account. The South Russian influence on a few pieces of jewellery of Taxila of the Śaka-Parthian period and the resemblance of the jewels found in the first century Conon paintings of Dura and those worn by the *Bodhisattvas* of the Gandhāra art should be borne in mind.[3]

But these diverse outside influences did not remain still on the frontier. They permeated into the inner part of India also. The specimens of the industrial arts are not enough to assess them properly but from the sculpture of the Early Indian School of the pre-Christian period[4] and the portrait statues of Mathura of the time of the Kuṣāṇas, the only example of this type of sculpture in ancient India, we can detect the touch of foreign

[1] Rawlinson, G., *Bactria*, p. 83.

[2] *AI*, IV (1947-8) p. 101; Huzayyin, *Arabia and the Far East*, p. 18.

[3] Rostovtzeff, *Dura—Europos and its art*, p. 80.

[4] Altheim F., *Weltgeschichte Asiens im griechischen Zeitalter*, II, pp. 84 y.

hands without much effort.[1] The style of the Bharhut reliefs with the angularity and separateness of individual figures comes close to the similar Iranian art under the Arsacids and to the frescoes of the temple of Dura.[2] This outside influence on Indian art was not something peculiar to this period; it can be traced from the time of the Mauryas.[3] From these facts we may infer that the industrial objects manufactured in the interior parts of the country were also to some extent modified by foreign technique and design, as happened in Taxila.

That the sculptors and workers were coming to Central India is proved from some signatures in Kharoṣṭhī script left by masons in Bharhut.[4] In any case it is not possible to determine the scale of such movement of labour from the frontier to inside India in the ancient period. But that craftsmen had migratory habits is evident from an epigraphic source of slightly later period.[5] However little we know about this, we may surmise that there was some migration of labour from the Northwest to inner India but whether that movement brought any important changes in industrial techniques or not cannot be answered satisfactorily at present. Even if there was any such change it must have been very slight. For reverting to the realm of art we find that the Mathura School, which flourished under the Kuṣāṇas, was almost devoid of any direct foreign influence.[6] Further evidence of Kuṣāṇa art is provided by the ivory plaques found in Begram. These objects carved in the style of the Mathura School are almost all of purely Indian origin. The patronage of the Gandhāra and the Mathura Schools of art was the main contribution of the Kuṣāṇas to Indian art. But none of these Schools can claim any new contribution basically different from the traditional Indian artistic expression.[7]

We should also remember that the Indo-Scythians, who among

[1] Rowland, B., *The art and architecture of India*, p. 92.

[2] Altheim, F., *loc. cit.*

[3] The pillared hall at Pātaliputra built on Persepolitan lines, architectural details in pillar capitals, etc. go to show close contacts in ideas which subsisted between Persia and India in the third century B.C. (*AI*, IV (1947-8), p. 103).

This Persian capital style is found at Bharhut, Sanchi and even at Eran of the fifth century. (Smith—*A history of fine arts in India and Ceylon* pp. 307-308).

[4] Altheim, *op. cit.*, p. 86.

[5] *CIL*, III. pp. 79-80.

[6] Coomarswamy, *History of Indian and Indonesian art*. pp. 59-60.

[7] Rowland, *op. cit.*, pp. 98-100.

the foreigners penetrated deepest into India and dominated the scene for the longest time, had been a nomadic people, and their constant migration did not permit any improved method of art to be fostered within their community, except perhaps the making of the metal horse—trappings and hunting gear almost natural to such people.[1] The foreign influence on Indian arts was thus 'accessory' and not 'integral'.[2] It seems that the same process of modification went into the field of industrial activities also.

To study the standard of industrial products we shall have to depend on rather indirect sources. From the contemporary literature and that of the immediate past we gather that there was a flourishing and organised industrial life as represented by the guilds. Moreover, the *Arthaśāstra* and to some extent the *Dharmaśāstras* advocate systematic governmental measures to control industry for the full benefit of the society and the State. These facts would suggest that Indian industrial products in the period under discussion were of a high standard. All the potentialities necessary for achieving a high industrial standard were there and the specimens of some of the industries like glazed pottery and Begram ivory that have survived justify this expectation. Indian iron and textiles had good foreign markets, no doubt thanks to their quality. But why were the industrial products exported so few as compared with the vast resources and manpower at the disposal of the country and acquaintance with a foreign market of considerable size? No doubt the volume of internal consumption of industrial objects was quite huge. That however should not have greatly deterred the winning of overseas customers if the Indian goods had been able to compete with the production of other countries in quality and price. Can it be that this rather modest level of export trade in finished goods had any bearing on the efficiency of Indian craftsmen or the lack of proper organisation of industry?

There are reasons to believe that the gradual development of the rigid caste system and the attitude of society towards craftsmen as reflected in the injunctions of the *Dharmaśāstras* which discourage all kinds of industrial pursuits especially by people of higher castes might have brought some adverse effect on the

[1] Rowland, *loc. cit.* [2] Smith, *op. cit.*, p. 379.

standard of workmanship.[1] The intellectual portion of the community seems to have been largely withdrawn from the active participation in the industrial arts, and this caused deterioration in the standard of production.[2]

Moreover, an abundance of raw materials may sometimes hinder the progress of industry. Throughout its history India has earned foreign exchange by exporting raw materials. Perhaps one of the side effects of this situation was the failure to achieve the full industrial development that the country was capable of making. This happened not only to ancient India. The more industrially developed countries of that time such as Egypt, Syria and Rome[3] had to import the materials necessary for their industries from outside, whereas naturally rich countries like Arabia[4] and Parthia[5] were comparatively backward in their industrial production.

Conventional attitudes towards manufacturing consumer goods and lack of capital are big obstacles to industrial development.[6] As Indian traders found that by supplying natural products of the country to the outside world they could make good profits, they had no incentive to invest money to develop the country's industry. We should not forget also that all the important ruling houses of Northern and Western India of the period under discussion were engaged in a flourishing foreign trade and that their realms were basically mercantile in character. So the lack of patronage from private businessmen and the State certainly had adverse effect on industry.

In spite of high potentialities ancient India did not develop into an industrial country. However, it achieved proficiency in a

[1] *Manu*, X. 82-90, 99-100.

[2] The religious arts, such as the making of metal images of deities and the erection of temples, continued to flourish long after our period. These branches of art and industry were never neglected. Whatever little technical literature in this field has survived is related to image making and other religious arts and that too is chiefly concerned with the ritualistic side of the subject (Banerjea —*The develoment of Hindu Iconography*. pp. 212-13).

[3] These countries were highly commercial also. (Rostovtzeff, SEHRE, I, p. 153). They traded with their industrial products against the raw materials from Arabia, Parthia and India (Rostovtzeff, Rome, p. 263).

[4] Hilti, *History of the Arabs*, p. 48.

[5] Ghirshman, *op. cit.*, pp. 25-26.

[6] Derry and Williams, *A Short History of Technology*, p. 701.

few branches of important industry, such as iron and textiles. Anything manufactured in India might have been "more or less a work of art"[1] but the economy of the country was solidly based on agriculture and trade and not on industrial pursuits. We wonder whether further excavations will bring any radical change in this assessment. And whatever might have been the social standing of the craftsmen, the economic condition of some of them as suggested by a large number of recorded gifts made by them, was perhaps prosperous.[2]

[1] Birdwood, *The Industrial Arts of India*, p. 132.
[2] Sharma, *op. cit*. p. 179.

CHAPTER III

# TRADE

## INLAND

THE political history of a large part of Northern and Western India, during the period under discussion, was to a great extent, dictated by the attempt to maintain hold over territories, by which trade with the outside world could easily be carried on. With the states which derived much of their income from foreign trade, one of the chief concerns of the authorities was, we may expect, to protect and foster all kinds of trade interests.

Though the rigid Kauṭilyan State control over the economy of the country did not continue in our period, from the *Dharmaśâstra* it is obvious that the State still had power to prescribe restrictive measures in the field of trade and industry. From the injunction that the king might confiscate the whole property of a trader who exported goods, of which the State had a monopoly,[1] it is evident that the State actively participated in the export of some merchandise and did not brook any competition from private enterprise. However, lack of evidence does not allow us to point out either the states where such measures were put into practice or the particular merchandise over which the State had exclusive right of export.

Most of the measures prescribed in the legal literature are related to trade inside the country. Before we turn to them we shall discuss a few other aspects of inland trade.

In our period we find for the first time in Indian history a regular issue of coins by different ruling houses throughout the country. This suggests that the stage of trading through barter had largely passed.[2]

Often we meet descriptions of towns with flourishing shops.

[1] *Manu*, VIII, 399.

[2] Kosambi (*An Introduction to the Study of Indian History*, p. 257,) thinks that the poor coinage of the Sātavāhanas, as reflected in their issues of lead

In Sāgala, the capital of King Milinda, there were many shops selling Benares muslins, jewellery, perfumes and other fineries.[1] Towns with similar centres of retail trade are also described in the epics.[2] It seems that luxury products were in good demand in big towns. Retail business was also done by pedlars.[3]

The Periplus refers to market towns of western part of the country—Paeṭhāna (Paithan), Ṭagara (Ter), Suppara (Sopara), Calliena (Kalyana).[4] Possibly these were centres of wholesale trade and commodities to be exported were purchased in these places and were sent to near by ports.

For trading in a vast country like India trunk routes covering distant regions are essential. The Buddhist literature indicates the existence of an extensive system of caravan routes linking the important centres of trade throughout the country.[5] There is no doubt that communications were developed considerably by the Maurya bureaucracy in order to manage public affairs efficiently. The Royal Highway ran from the capital of Pāṭaliputra through the entire length of the country and reached Taxila in the north-west; in the east it extended up to the mouth of the Ganges.[6] There is nothing to show that any improvement in the existing communication system was carried out in our period. It seems that the traders were covering the same routes as before.

The Gangetic valley was connected with all parts of India above the Vindhya and Satpura ranges, the important termini being Bhṛgukaccha (Broach) in the Indus delta, Paṭala (the classical Patalene) and Puṣkalāvatī (Charsadda) on the west and the north-west, and Tāmralipti (Tamluk) on the east. The western parts were also connected with the north-western region and with commercial centres on the south-west coast. The Periplus refers to two routes from Puṣkalāvatī going southwards, one

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and potin, suggests that the barter system was still prevalent in their realm. But the standard of indigenous coins in India was never high, nor the metal-content rich. The base coinage does not necessarily prove that the system of currency was not running fully. We do not know the cost of lead at that time but the Periplus (56) reports the import of lead into Western India.

[1] *Milinda*, II. 1-2. [2] *Rāmāyana*, *Ayodhyā* and *Bāla Kāndas*, passim.

[3] *Jātakas* II, 109f; I, 205 make mention of pedlars. No doubt this system of selling goods continued.

[4] 51, 52. [5] Rhys Davids, *Buddhist India*, pp. 103-104.

[6] Thapar, *Aśoka*, pp. 81-82.

up to Barbara and another to Bhṛgukaccha through Malwa· These two routes, as we shall presently see, helped to carry the transit trade between China and the Mediterranean countries. Bhṛgukaccha was also connected with Tagara and Pratiṣṭhāna.[1] In Upper India Śrāvasti (Sahet-Mahet), Champā (Bhagalpur), Pāṭalīputra (Patna), Bārāṇasī, Kauśāmbī, Ayodhyā, Mathurā, Śākala and Vidiśā, and Ujjayini in in the Malwa region were important centres of trade and it seems that they were interconnected with the main cross-country routes and there were numerous ancilliary feeder routes between these towns. The direction of trade routes, internal and external, is determined by geographical as well as political factors. How far the changing political situation in the India of our period was responsible for diverting trade from the existing routes, cannot be determined, as we have to gather our information on this subject either from the *Jātakas* or from the epics which are not very helpful in this way.

Dangers and uncertainties involved in long distance travel compelled the traders to move in caravans. In early Indian literature we meet descriptions of large caravans covering a long distance, and hazarding great risks from robbers and wild animals.[2] The traders often had to undertake journeys by boat, as rivers intervened in most of these caravan routes. In the riparine parts of the country water traffic provided an alternative system of transport as is evident from the *Ayodhyā-kāṇḍa* of the *Rāmāyaṇa* and the *Sabhā-parva* of the *Mahābhārata*. That some sea-going vessels went far inside the country whenever it was possible is evident from Strabo's reference to boats going from the sea by way of the Ganges to Palibothra.[3] It is obvious that there was considerable coastal trading. From the Periplus (47) we learn of an active trade between Bengal and the coastal parts of South India carried on in large vessels called 'colandia'. The *Milinda-pañha* (Bk.II. 269) refers to ship-owners visiting Sind, Surat, Coromandel coast and Bengal. We may expect that the post-Maurya governments, at least of those states which earned a large revenue by exporting their products abroad, took measures to facilitate internal trading voyages. No doubt the traders had

[1] Periplus, 38, 39, 48, 51.
[2] *Jātakas* III, 200, 403; *Mahā*, IX. 3.1.3.
[3] McCrindle, *Ancient India*, p. 16.

to pay numerous levies—including road cess (*vartani*), octroi duties (*Śulka*)—as they crossed one state after another, though we are not definite about the rates. In the *Arthaśāstra* we find an elaborate system of these levies.[1] According to this text *Śulka* was imposed on foreign as well as indigenous products. When country-made goods entered a city, a duty was levied on them.[2]

The kind of commodities carried from one part of the country to another can be inferred from indirect references. In the epics we find that different kinds of presents and gifts are brought to the royal houses in Northern India from different regions. Cotton cloth was brought from the eastern region and Aparānta (south-west region), silk from Cīna and Bāhlika (Bactria, obviously the reference is to Chinese silk on transit), blankets from Kāmboja (not identified with certainty, perhaps the region of Ghazna), weapons of steel from the eastern region and Aparānta, horses and camels from the north-western region, elephants from the eastern and southern regions.[3]

Business, it seems, was often connected in joint enterprises. One of the contemporary law books, *Yājñavalkya Saṁhitā* discusses in detail the rules of partnership. The profits in joint ventures are asked to be divided either according to the share in the capital or as agreed among the partners. In case of loss by the negligence of a partner, or by his action against the disapproval of others, the former is asked to make it good. A partner can appoint a man to act for him. If a partner proved himself bad he had to leave the business without the share of his profit.[4]

There were trade guilds also, though we are not very sure whether they were as extensive as were the industrial guilds. The system of managing the affairs of trade guilds and their relations with government were similar to those of industrial guilds which we have discussed in the previous chapter.

It has been suggested that some of the Western Indian Buddhist monasteries, of which we come to know from the inscriptions found at Nasik, Junnar, Karle and Nanaghat, had accumulated ast wealth, received through generous gifts, and that they invested part of it in business. Their mercantile function was to supply capital loans and provisions to the trade-caravans. The cave-

[1] II. Ch. 21 and 22. [2] Gopal, *Mauryan Public Finance*, p. 79.
[3] *Mahā, Ādi parva*, Ch. 199, 221, *Sabhā parva*, 28, 30, 31, 49, 51.
[4] *Yāj*, II. 259-265.

monasteries were located conveniently near the interconnecting trade-routes covering a wild part of Western India. Prof. Kosambi, who has propounded this theory, thinks that the *Mūlasarvāstivādin* and *Mahāsāṁghika* schools of Buddhism which dominated this part of the country changed the strict Vinaya rules without deviating from the letter and made it possible for the monasteries to indulge in such apparently mundane pursuits.[1] We know from the Nasik inscriptions that money was left by devotees with the local guilds so that interest on it would go to the Buddhist monasteries. Had the monasteries themselves been engaged in business—especially when they required liquid money to supply loans as has been suggested—why was money invested in the guilds? We have references to the gift of moeny and land to *brāhmaṇs* and various religious institutions from early times but we do not know whether there was anything like temple trade in ancient India as it was in Egypt and other countries in Western Asia. It may be that the Śakas who established in Western India in the last centuries B.C. learned about this system in Parthia where they stayed long and later introduced it into Indian Buddhism. On the analogy of the employment of Church property in Europe also this hypothesis seems to be quite sound but more positive evidence is needed to come to a satisfactory conclusion on this point.

The law-givers of the period under discussion prescribed various measures as regards profits, taxes and rates of interest. It seems that in theory financial administration of the country continued to follow to some extent the system prescribed in the *Arthaśāstra*.

According to *Yājñavalkya* (II, 251-53) the king was to fix the price of commodities allowing five per cent profit on indigenous goods and ten per cent on foreign products if buying and selling was done on the same day. The king should bear in mind the interest of the buyer as well as of the seller while fixing prices. The transport and retention charges and the probable outlay should also be taken into account, according to *Manu* (VIII.401). The latter also said that the king should examine the price schedule once every fortnight at least and be careful about checking and properly marking, weighing and measuring instruments (VIII. 402-3). For fraudulent business by wrong measurement or adul-

[1] *JBBRAS*, XXX. (1956) p. 50f. (Kosambi—*Dhenukākaṭa*).

teration or by charging more, the imposition of heavy fines was prescribed, the rate of which was to vary according to the type of merchandise, its cost and the particular situations (*Yāj*, 244-50).

Traders should be taxed on the profit (*mūlyam adhikam*—increase of capital) and not on the capital outlay, according to *Manu*. Both of the leading law givers prescribed to impose tax at the rate of five per cent (*Manu* VIII. 398; *Yāj* II, 261). Manu's idea that profits should be determined with reference to *Yogakshemam*, i.e. according to the trouble and labour involved in producing things as well as preserving them is also reflected in the *Mahābhārata* (*Śānti Parva*, LXXX. 16).[1] Tax-evaders had to pay eight times the original amount (*Yāj*, II, 262).

The rate of interest was high as we can gather from these texts and this has caused scholars to suggest that the country was short of capital.[2] In a caste-ridden society this rate varied according to the caste of a borrower, two, three, four and five per cent per month for *brāhmaṇ*, *kṣatriya*, *vaiśya* and *śūdra* borrowers respectively (*Manu*, VIII. 142; *Yāj* II. 37).[3] The rate of interest became higher when merchants took special risks. If the merchandise had to be sent through forest areas the rate was ten per cent and double that amount was charged for sea voyages. Sometimes the rate was mutually arranged between the parties (*Yāj*, III. 38-39). From certain Nasik inscriptions it is learnt that the depositors were paid nine to twelve per cent interest by weaver's guilds.[4] But we do not know how much general borrowers had to pay for taking a loan.

We have, however, no historical evidence to judge how far these precepts were followed in practice in our period. The measures like fixing prices suggest that government was expected to take effective control over trade. This sort of intervention by government required the existence of honest and efficient officials. It seems that the law givers were quite conscious that these people might turn 'knaves' and so they prescribed to maintain strict

[1] Vaidyanatha Ayyar, *Manu's land and trade laws*, p. 90.

[2] *Comp. HI*, ii. p. 453.

[3] This rate was possibly for unsecured loans. For *Yāj* specifically mentions the rate as 1¼%, when a pledge has been delivered and this rate is also supported by *Manu* (VIII. 140) who does not make any distinction of situation but only states that charging 2% does not amount to committing a sin.

[4] *EI.*, VIII. pp. 82-83.

supervision over government employees (*Manu*, VII. 121-24).

Under normal circumstances trade and money-lending were open to the *vaiśya* (*Manu*, I. 90; VIII 410). Trading, according to *Manu*, degenerates a *brāhmaṇ*. Only when fallen in deep distress and incapable of surviving by following his own profession was the *brāhmaṇ* allowed to take to commerce (*Manu*, X. 85) and then only with many reservations. He was permitted to deal in a very few commodities only. The reason behind these restrictions is not always clear. For not only animal products, which were perhaps not allowed to be handled by *brāhmaṇs* owing to the principle of non-violence, but even salt, dyed cloth, cloth made from flax, just to give a few examples, could not be sold by them (*Manu*, X 86-93).

Apart from making life strictly compartmental by prescribing particular professions for particular community, the ancient Indian law-givers rather detested trading, though they were alive to the situation that if the *vaiśya* and the *śūdra* kept away from duty that would bring social confusion, (*Manu*, viii. 418). Commerce, according to them, was a mixture of truth and falsehood—*satyānṛta* (*Manu*, IV. 4). In the ancient West also we find that traders lacked social prestige.[1] But the extension of a realm, wheather in ancient Greece or Rome or in ancient India, was often achieved with the object of deriving the greatest benefit from trade and commerce.

## FOREIGN

The apparent geographical isolation of India never proved itself an effective obstruction to her contact with the outside world and the ports and passes of this country have been kept busy by indigenous and foreign traders from very ancient time.

Archaeological finds such as fragments of steatite vessels, seals and carnelian beads prove that the Indus Valley had trade relations with Sumer, Elam and Tylos and perhaps an indirect contract with Egypt.[2] There is evidence that cotton goods were sent to Western Asia from the Indus Valley region.[3] The trade

[1] Soltau, *An Outline of European Economic Development*, pp. 11-13.

[2] Mackay—*Further Excavations at Mahenjo-Daro*, I. pp. 639f; *Antiquity*, XXXII, pp. 243-46.

[3] Gordon, *op. cit.*, p. 74.

between the Indus Valley people and Western Asians was carried on by both land and sea.[1] The evidence of India's foreign trade after the Indus Civilisation and before the beginning of the historical period is not direct but we may infer from numerous circumstances that the commercial link with the outside world always continued in varying degree. The theories that the ancient Egyptians wrapped their mummies with Indian muslin or the Queen Hat-Shepsut (1516-1481 B.C.) imported sonter incense from India or that the Ophir to which King Solomon (c. 800 B.C.) sent an expedition for gold was in India, cannot be confirmed with dependable proofs.[2] But there is little reason to doubt that the elephants that are found on the black obelisk of Shalmaneser (858-824 B.C.) along with apes and Bactrian camels had crossed the lofty Hindu Kush and that the teak wood used for furnishing the temple of the Moon at Ur and the palace of Nebuchadnazzer (604-562 B.C.) was sent from India by the Persian Gulf.[3]

Sea voyages are mentioned in Indian literature from the early Vedic period though their destinations cannot be determined.[4] But the *Jātaka* tales of traders going to the land of Bāveru carrying a crow and a peacock with them give general evidence of the trade between India and Babylon.[5] The fact that exotic products such as rice, peacocks and sandalwood were known in Western Asia in the fifth century B.C. in their Tamil designation—*arisi*, *tokai* and *aghil*—suggests commerce between this region and South India by sea.[6] In one of the Indian law books assigned to this time sea-faring is discouraged and even loss of caste is threatened to one who travels by sea.[7] But what we know of India's sea-borne trade of this and the subsequent period proves that such injunctions were not very effective.

It is not possible to assess the amount of the trade of India with the West up to the beginning of the historical period. However, with the coming of the Greeks in Asia the scope of international

[1] Mackay—*loc. cit.*

[2] *JRAS* 1898 pp. 244-46 (Kennedy—*The early commerce of Babylon with India*, 700-300 B.C.).

[3] Rawlinson—*Intercourse between India and the Western World*, pp. 3-4. That the Indian teak was going to Western Asia in the second century A.D. is known from the Periplus (Schoff—*op. cit.*, p. 36).

[4] *Rg. Veda*—I. 25. 7; I. 116. 3; VII. 88. 3, 4.

[5] III. 83.

[6] *JRAS* 1898 pp. 268-69.

[7] *Baudh* I. 1, 2. 4-6; II. 1. 2. 1-2.

trade gradually widened. Alexander's invasion of Asia caused not only vast political change but as a sequence to it closer economic relations were established between India and other countries.[1] Our sources of information also increased from this time. In fact it is mainly from the Greeks and later from the Romans that we learn about India's foreign trade in the period under discussion. This trade was carried on mostly with different parts of Western Asia and the Mediterranean countries.

There was some commercial link with Central Asia and China through the frontier passes and it is claimed that trade with South-east Asian countries, which became intense afterwards, also started by the end of our period. Thus the topic covers a vast area, stretching from the westernmost parts of the Roman Empire to the Indian archipelago, from the eastern coast of Africa to the China Sea. We shall discuss India's trade relations with the West, Central Asia and China, and South-east Asia separately.

### (*a*) *The West* (*Land route*)

Ancient India's link with Western Asia, whether for political or for trade purposes, was maintained by a few land routes, joining the rich Indus region with the Iran plateau and the Oxus basin through ridges of the Hindu Kush and the Afghan Valley, as well as via the Persian Gulf.

These land routes were usually the continuation beyond the north-western border of the trade routes emerging from and passing through various seats of industry and trade inside India. The main trunk road of which we learn from the *Jātakas* and the account of Megasthenes covered the entire span of Eastern and Northern India from the port of Tāmralipti to the frontier town of Puṣkalāvatī, going by way of Campā, Vārāṇasī, Kauśāmbī, Mathura, Sāgala, and Takṣaśilā.[2] From Puṣkalāvatī it proceeded further through the Khyber Pass, the Kabul Valley and the Hindu Kush, and terminated at Bactra. Part of this road no doubt constituted the Uttarapatha, a term which later was often used for the whole northern region. The Periplus refers to a route from Bhṛgukaccha to Puṣkalāvalī which possibly ran via Ujjayinī and Vidiśā and met the northern trunk road near Kauśāmbī.[3]

[1] Tarn—*The Greeks in Bactria and India*, pp. 361f.

[2] *Jāt* III. 365; Strabo—XV. i. 11.

[3] Schoff—*op. cit.*, pp. 41-42.

From Bactria, which was an important centre of transit trade between India, China, Central Asia and the Mediterranean world; it proceeded westwards through the northern part of the Persian desert, the grassy downs of Aria (Herat) and Margiana (Merv), the Zagros valley, across the Tigris and the Euphrates to Antioch in Syria.[1]

There are two other outlets to Western Asia from the Indus Valley, though they were not much used. One of them goes through either the Bolan or the Mula pass, situated on the south-west fringe of the Afghan mountains and opens into the vast plateau between Herat and Kandahar. The other passes through the narrow Makran coastal strip of Beduchistan which joins the lower Indus plain with Southern Persia.

It is evident from the classical sources that the first route, passing through the Khyber Pass, was generally used by the traders, and Indian literature so some extent corroborates this. Compared to other routes this one is less hazardous and, what is more significant, it was nearer to the international trade route which became quite busy from the first century B.C. with the establishment of a more regular traffic in silk. The great Indian desert facing the other two routes formed the biggest obstacle to their use. Moreover, the Persian Gulf, round which coastal trade was carried on between India and the neighbouring countries, made it unnecessary to use the Makran route, which was not at all hospitable. The disaster that befell Alexander's army on their way out of India through the Makran route probably left for a long time a frightening memory which kept others from following this route.[2] In the medieval period, however, this route was often used by the Arab traders.[3] It was through the Khyber route that the invading armies of Alexander, Seleucus and Kadphises I entered India.

According to the classical tradition there were three trade routes that joined India to the West. The Northern route, as we know from Strabo[4] and Pliny,[5] proceeded from Bactra, down the Oxus, across the Caspian to the Black Sea by way of the Kur and the

[1] *JAOS*, XXXV. p. 31. (Schoff—*Some aspects of the Overland Orienta trade at the Christian era*); Warmington, *op. cit.*, pp. 19f.

[2] Warmington—*op. cit.*, p. 25.

[3] *CHII*, p. 29.

[4] II. 71. 73; XI. 509.

[5] Pliny, VI. 52.

Phasis. But the existence of this route is strongly doubted.[1] Perhaps later in the Roman period Indian wares were going to the Caspian region whence Armenia received a part of her imports from India, the remaining part coming there directly through the Parthians.[2] The most important and busy route was the Central one which covered roughly the Bactria-Antioch road mentioned above. The Southern route went across the sea to South or South-eastern Arabia and thence joined one or other of the Arabian routes to the west.[3]

The Persian Gulf, which forms the shortest passage between India and the western part of Asia, was used by traders from very early times. But we do not know much about early voyages across it or around its coast except for an account left by Nearchus whom Alexander employed to explore the route from the Indus to the Euphrates. From the report of Nearchus, as embodied in Arrian's Indica,[4] we learn that it took about six months to reach Diriodotis, one of the mouths of the Euphrates, at that time at the head of the Persian Gulf, from Corcola (Karachi). It was a voyage full of dangerous and interesting experiences. Nearchus and his men had to start against the changing monsoon due to the hostility of the Indians on the shore of the Indus and after a few days' journey a heavy storm sank three of their ships. Sailing further west they came to Carbine which according to their native crew was a Mermaid's island. Nearchus proved the falsity of their story. This island is now called Astola and up to recent time it was a centre of Sun-worshippers. For food the Greeks were sometimes forced to land in strange places inhabited by savage people and as a result they had to face many hardships.[5] Later in the first century A.D. Appolonius followed the same route on his way to Babylon from Paṭala, a city in the island of Patalene, formed by the Indus at its mouth.[6] There was a direct route which ran between Paṭala and Pāṭaliputra.[7] We shall discuss more

[1] The Northern route was only a suggestion of starting an easy trade route between India and the Caspian region, made in the report of Patrocles submitted to Antiochus I. Perhaps in later period it began to function. Tarn—*The Greeks in Bactria and India*, pp. 488-90; Thompson—*History of Ancient Geography*. pp. 127-29.

[2] Warmington—*op. cit.*, pp. 27-30, 33-34.

[3] Tarn and Griffith—*Hellenistic Civilisation*, pp. 241-44.

[4] *Indica*, 21-42.

[5] Cary and Warmington—*Ancient Explorers*, pp. 62-66.

[6] McCrindle—*Ancient India*, pp. 40, 195.

[7] Basham, *op. cit.*, pp. 223-24.

about trade via the Persian Gulf in the section on sea-borne trade.

The political condition of the part of Western Asia covered by the above-mentioned trade routes was often unstable in the period under discussion. The attempts of the Mediterranean powers to maintain a strong hold over Syria, Iran and Bactria and the period, i.e. outbursts of certain Central Asian groups towards the south sometimes made this area not very congenial to trade, the current volume of which in turn was undoubtedly one of the chief reasons for this instability. The trade must have been considerable to allure rival powers to gain control over the entire area and enrich themselves with the revenue collected from a large number of trade marts and octroi posts.[1] The importance of the Oxus basin in India's trade with the West is stressed by classical writers.[2]

By the middle of the third century B.C. Bactria under the local Greeks and Parthia under the Arsacids revolted against Seleucid suzerainty and became independent powers.[3] Strictly speaking they were not parts of the Hellenistic Empire.[4] However, under the new regimes the economic condition of Bactria improved, and this is apparent from the coins issued by the Graeco-Bactrians. Their country which was agriculturally rich[5] throve immensely on the great East-West transit trade conducted through its boundaries.[6] Indeed the standard and variety of coinage of this new line of rulers amply prove the thorough monetary economy which Bactria enjoyed under them. A large circulation of minted money was necessary to help smooth transactions "at the confluence of the world's trade routes."

The excavations done by the French archaeologists in Begram and a few other places of Northern Afghanistan which were within Bactria show that the scale of trade was quite high and the countries taking part in these transactions were many.[7] The finds of these excavations are mostly attributed to the period of the Roman Empire when the major part of the trade between Asian and Mediterranean countries was carried on by sea. In the earlier period when the sea route was not much developed

[1] *JAOS*—XXXV. p. 31.
[2] Strabo—XI. 7. 3.
[3] Justin XLI. 4. 5.; Rawlinson—*Bactria*. p. 54.
[4] Ghirshman—*Iran* (Penguin Books) p. 243.
[5] Strabo—XI. 11. 1.
[6] Rostovtzeff—*SEHHE*. I. pp. 544-46.
[7] Hackin—*op. cit.*, passim.

the overland trade through Bactria and the neighbouring countries was undoubtedly heavier.[1] Caravans from India must frequently have crossed the frontiers of Bactria and Parthia on their way to Seleucia on the Tigris and other Western marts.[2] Seleucia was the clearing house of the Eastern merchandise travelling by most of the land routes to the West. For the duration of their empire the Seleucids earnestly tried to ensure that merchandise from India, Central Asia and Arabia should pass through Syria and not through Egypt, and they had continuous trouble with the Ptolemies of Egypt in retaining control over the western end of the Asian trade routes.[3] The Ptolemies were already enjoying the fruits of the major part of transit trade passing through Arabia.

It seems that India's trade connection with Western Asia was a contributing factor to bringing about the alliance between Seleucas I and Chandragupta Maurya in c. 306 B.C.[4] Since that time, diplomatic relations, between India and Syria as well as their commercial intercourse, which had been carried on from a fairly early time, became more intense. This is confirmed by numismatic evidence. Some early Seleucid coins have been found in India[5] and Rapson draws our attention to the fact that certain coins issued by the Greek rulers show the adoption of the elephant as a type and that there is some similarity between other coins of the Seleucids and those of Sophytes.[6] The trade between India and Syria was carried on mostly along the traditionally busy route passing through Bactria, Hecatompylos, Ecbatana and Seleucia. It is suggested that from the second century B.C. the sea route from Barygaza to the Gulf of Ormuz and thence to Seleucia was also used for this trade.[7] This fact has been related to the question of the occupation of Northern India by the Greeks of Bactria and the extension of their rule towards the western sea-board. But as we have seen above Indian merchandise had been going to Babylon and other places in Western Asia from an earlier time through Barygaza and other Indian ports.[8]

No Selculid coins of the later period have been found in India,

[1] Rostovtzeff—*loc. cit.*
[2] Tarn—*op. cit.*, p. 362.
[3] Rostovtzeff, *op. cit.*, I. pp. 455-57.
[4] Rostovtzeff—*loc. cit.*
[5] *CHI*—pp. 433-34. As these coins do not have Attic weight, prevalent in all parts of Hellenistic Asia some scholars think they were issued for India (Rostovtzeff—*op. cit.*, 1. p. 461).
[6] Rapson—*Indian coins*, p. 4.
[7] Tarn—*op. cit.*, pp. 481-85.
[8] *Supra*—p. 102.

perhaps owing to the expansion into India of the intermediate power of Bactria, whose coins flooded the north-western part of the country within a short time.[1] The Greeks of Bactria, taking the opportunity of Syria's engagement with its immediate neighbour and the fluid condition of Upper India following the disintegration of the Maurya Empire, invaded India (190 B.C.). The weak Indian resistance against the expedition of Antiochus the Great a few years earlier (208 B.C.) must have encouraged them.[2] From Strabo's account,[3] which is corroborated by several Indian literary sources,[4] we know that the invaders made considerable headway inside India. Perhaps by a sudden thrust they reached as far as Pāṭaliputra, the coveted seat of administration in Northern India, but soon they had to beat a retreat to the north-western region. The tall claim that Demetrius, the real founder of the Bactro-Greek or better called Indo-Greek rule, intended and was able "to restore that huge derelict Empire (of the Mauryas) but under Greek rule and with himself on the throne of Aśoka"[5] is undoubtedly based more on imagination than on dependable facts. It seems that the extent of the Indo-Greek kingdom even in its best days did not go beyond the limits of the Punjab.[6] But it can be assumed without risk that Indo-Greek coins travelled far and wide inside India by way of trade.

In the passage 47 of the Periplus, there is an expression—*prochorousi*—in connection with the coins of Apollodotus. Tarn has interpretated it as "circulating as current coins for buying and selling."[7] But other scholars differ from this view.[8] However, supplementing the above explanation with the statement of

[1] IHQ XI. (1935) pp. 241f. (Chakravorty—The Seleucidian Emperors; Their coins and coin institutions in India).

[2] *C.H.I.*, I. p. 444.

[3] XI. II. 1.

[4] *Patanjali* (Kielhorn's edition) II. 118-19; *Mālavikāgnimitra* Act V; *Yugapurānam* (Mankad's edition) p. 3.

[5] Tarn— *op. cit.*, p. 152.

[6] Narain—*The Indo-Greeks*, p. 97.

[7] Tarn—*op. cit.*, p. 149.

[8] Whitehead thinks it means "come to light" (*Notes on Indo-Greek numismatics, N.C. 1923* p. 306, n.16).

Palmer takes it as "come to hand". According to him the old Indo-Greek coins came to the money-changers' shops in Barygaza. These coins had their metallic value and so they had some demand in the market and it does not matter where they were originally circulated as currency. (*Periplus, remarks on Chapter 47 Classical Quarterly*, 1949, pp. 61-64).

Strabo[1] that the Bactrians occupied not only Patalene (Paṭala, modern Bahmanabad) but also rest of the coastal area called the Kingdoms of Saraostus (Saurāṣṭra) and Sigerdis (country between Patalene and Saurāṣṭra including Cutch), Tarn suggests that Apollodotus ruled in Barygaza.[2] Strabo helps to establish this hypothesis but so far no Indo-Greek coin has been found in this area to confirm it.[3] Even if the account in the Periplus is true here, which we doubt, it does not prove that Barygaza or for that matter Saurāṣṭra was for any length of time under the occupation of the Indo-Greeks during the time of Menander or Apollodotus. The passage under discussion when read in full implies that these coins came from outside the area of Barygaza, probably from the realm of the Indo Greeks.[4] It is quite likely that the coins of Menander, Apollodotus and other Indo-Greek rulers well known for the purity of their contents were still current in North-western India in the time of the Periplus together with the issues of contemporary Kuṣāna kings. As far as it can be gathered, the circulation of coins of preceding rulers was never withdrawn in early India. From the north-west the coins in question could easily have travelled to Barygaza and neighbouring ports for commercial reasons. But we should expect that one of the cherished objects of the Indo-Greeks was undoubtedly to advance towards western coast of India and gain some hold there, because they had to maintain direct connection with the ports situated there.[5] These ports were not only important to India but they also had a useful part in the East-West trade at that time. Their importance grew with the passage of time and that is why all the later powers, whether foreign invaders or the indigenous rulers, were keen on occupying the western sea board. The reason behind all this which indirectly benefited India and kept its western ports busy was Parthia, covering the vital links between the East and the West.

[1] XI. 11. 1.

[2] *Op. cit.*, p. 149.

It is not clear why Tarn has emphasised the rule of Apollodotus in Western India and neglected Menander. Narain on numismatic ground places him after Menander during whose rule the Indo-Greek power reached its climax. (*op. cit.*, pp. 69, 100, 126, 181).

[3] *NC* 1940. p. 101. (Whitehead—*Notes on Indo-Greek coins*).

[4] Narain—*op. cit.*, pp. 68-69.

[5] Smith—*Early History of India*, p. 237, n2.

Bactria and Parthia, which threw off Seleucid suzerainty almost at the same time, had no love lost between them and since its inception Parthia was constantly in trouble. Either the Parthians were fighting among themselves or with their unsympathetic and sturdy neighbours. They had also to bear the brunt of the Central Asian nomadic flood from the middle of the second century B.C.[1] But caravan trade had to pass through this troubled country. The route followed by the caravans which extended up to the western border of the Han Empire was a natural line of communication between China and Western Asia "for the chains of oases along the foot of the Nan Shan constituted a line of least cohesion between the Hunish and Mongol nomads on the one hand and the Tibetan tribes on the other"[2]. Subsequently the route developed into the famous silk route thanks to a large extent to the efforts of Chang K'ién. We shall turn to the exploits of Chang K'ién while discussing India's trade relations with China and Central Asia.

The Parthians took full advantage of their geographical position. In spite of the continuous political troubles in that country the sound economic position of the Parthians is reflected in the varieties of coins issued by them at this time, which incidentally form the basic source of Parthia's history. The Arsacids, the ruling house of the Parthian Empire, and their vassals of the previous oriental possessions of the Seleucids, made themselves wealthy on the flourishing trade with China and India on the one hand and with the Roman Empire on the other.[3] Unfortunately the information regarding the trade relations between Parthia and other countries is meagre before the Roman and the Chinese appear in the picture by the end of the second century B.C. All we can gather is that the Parthians judiciously avoided annexing Seleucia so that the Eastern products passing through Parthia could find an open international market. Perhaps a compromise was reached between them and the Graeco-Semitic trading aristocracy of that place.[4] From the history of the Later Hans we learn that the Parthians tried hard to maintain their monopoly in this transit trade.[5]. The merchants of Parthia were well known for their shrewd

[1] *CAH*—IX. p. 585.

[2] Needham, *Science and civilisation in China*, I. p. 108.

[3] *CAH*, IX. pp. 120-24. [4] Ghirshman, *op. cit.*, p.245.

[5] *Hou-han-Shu*, Ch. 88. 20. (The Parthians knew that if any direct link between

and haggling nature.[1] The rate of profit they made was exorbitant. All these factors forced the traders of other countries to find another way to the West and to avoid Parthia as far as possible. They made a detour and started sending considerable portion of merchandise through India. But until sea-borne trade was fully developed by the later part of the first century B.C.[2] it was necessary to use the main route through Parthia. The diplomacy between Parthia and Rome was focussed over the trade carried on there for three centuries from the time when the latter first appeared as a major power in Western Asia.

At the beginning Rome found some common cause with Parthia in the work of weakening the Seleucids in Western Asia. Soon Romans and Parthians came face to face. Undervaluing the strength of Parthia the Roman proconsul in Syria, Crassus, took the offensive (53 B.C.), but he and his army had to pay heavily for this act. The strife between the two powers continued until it was realised during the time of Augustus that an entente between them might be helpful for commerce. But the wise policy of Augustus was soon discarded and as a result peace was not established between Rome and Parthia for a long time.[3] The rich East-West trade carried through Parthia lay at the root of this prolonged trouble. To gain something from this trade the Romans had only two alternatives before them, either to force better terms from Parthia or to find out new trade routes. Their latter objective was to certain extent successful.

The Northern route mentioned above (Supra. p. 104) which ran from Bactria towards the Black Sea through the Oxus-Caspian—uplands of Armenia—may have been functioning by this time, if not earlier.[4] The discovery of silk in ancient tombs of South Russia supports the existence of such a route.[5] The growing prosperity of Petra which gradually replaced Antioch, the age-old commercial centre on the Eastern Mediterranean, as the entrepôt

China and Rome is established it would be disastrous for them. When Kan-ying, the agent of General Pan Ch'ao made an enquiry about contacting the West by sea the Parthians frightened him by describing the horrors of a long sea voyage); Hirth, *China and the Roman Orient*, p.39.

[1] *Chang K'ién's report*, 102 (*JAOS*, XXXVII. p.108).

[2] Infra, pp. 129f.

[3] Rawlinson, G., *Parthia, passim.*

[4] Strabo XI, 5.8.; Charlesworth, *Trade-route and commerce of the Roman Empire*, pp. 104-107.

[5] Minns, *Scythians and Greeks*, p. 336; Warmington, *op. cit.*, p.175.

of this trade, indicates the use of a Southern route through the lower part of Iran over which Parthian control was rather loose.[1] The Romans, however, cannot be given all the credit for the diversification of East-West trade routes. In the north, Armenia itself provided a good market for Indian merchandise which had to be bought from the Parthians. After the opening of the Northern route the Armenians could receive these materials directly.[2] The route from Petra passed through Northern Arabia to the head of the Persian Gulf and thence through Southern Iran to Arachosia and Kabul. Thus it served the cause of the Nabataeans, of the Arab states of Characene and Mesene, of the Parthian vassals of Persia and Sogdiana, whose connection with the metropolitan power was not very intimate,[3] and of the Yue-chis, besides that of the Romans. For some time the strong position of the Yue-chis, who had the power to control the eastern end of this route and the passes into India and Turkestan, helped to maintain this route since they had been forced to migrate to the Oxus valley by the middle of the second century B.C.[4] This nomadic tribe, with the help of Bactrian camels, acted as efficient intermediaries in this part of the East-West trade. The influence of the Yue-chis or Kuṣāṇas, who within a very short period established a huge empire, was based and nurtured largely upon the profits from the trade between India and China on the one hand and the West on the other.

Perhaps this Petra-Kabul route could not be used for long without Parthian interference. For the southward movement of the Parthians is hinted at in the first century text *Mansiones Parthicae*, written by Isidore of Charax.[5]

It seems that for the rest of our period the condition of inter-

[1] *JAOS*, XXXV. p.32 (Schoff, *op. cit.*).

[2] Armenia was also a bone of contention between the Romans and the Parthians. It was a resourceful land, but more important was the fact that through Armenia a trade route could be made to bypass the main one running through Parthia and naturally both Rome and Parthia were keen to gain control over it. A settlement was reached between them during the reign of Nero (Strabo, XII. 3.35; Warmington, *op. cit.*, pp.33-34, 84-87). We learn of an Indian settlement in Armenia existing for about 500 years from the middle of the second century B.C. Perhaps it had nothing to do with the Indo-Armenian trade mentioned above.

[3] From the Periplus it seems that Persis was almost an independent power (Schoff, *op. cit.*, p.127).

[4] *JAOS*, XXXV, pp.32-33.

[5] Isidore, 18, 19.; Müller, *Geographi Graeci Minores*, I, 244-56.

national trade in this sphere did not change much and the empires of the Kuṣāṇas, the Parthians and the Romans fed and fattened upon the profits gained by large scale transactions carried on through their respective territories. In our discussion above we have referred to the main trunk routes only. Other minor routes and feeder routes interconnecting these trunk routes may be traced to certain extent with the help of the classical and Chinese sources but we shall not try to do that here.

(*Sea route*)

The participation of the Roman empire in the Eastern commerce gave a great impetus to the sea-borne trade between India and the Mediterranean countries. One of the important reasons for this development was undoubtedly the attempt to get rid of the Parthian middlemen on the land.[1] With the establishment of direct contract by sea between India and the West, and especially after the discovery of the knowledge of seasonal monsoons in the Arabian Sea by the Westerners, a very busy period of the early Indian foreign trade began. Before we discuss this we shall consider the condition of the Indian Sea trade through its western ports in the earlier part of the period under discussion.

Without entering into the controversy as to where maritime activities first developed, whether near the land encircled by the Aegean Sea or around the Arabian Sea,[2] it can be said with confidence that the enterprising people of the peninsulas of Arabia and India have used the intervening sea as a highway of trade from fairly ancient times. With the help of archaeological finds commercial connection between Western India and Egypt has been established as early as the middle of the third millenium B.C. We have cited above a few Indus Valley materials found in Egypt,[3] and if Flinders Petrie's hypothesis is right that the Egyptians of the time of the Fourth Dynasty used the diamond for cutting stones we find instances of trade between Egypt and other parts of India.[4] For at that time only from the eastern plateau of

[1] Rawlinson, H. *India and the Western World*, p.89.

[2] Panikkar—*Indian Ocean*, pp.22-23. [3] Supra, p.101 n.2.

[4] *JAI*, XIII, pp.89-92 (Flinders Petrie—*Mechanical methods of the ancient Egyptians*).

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Deccan diamonds could be exported.[1] Most probably then there was no direct contact between India and Egypt by sea, and a route by both land and sea had to be used, where Arabs and other acted as intermediaries between the two countries.[2]

Navigation in the Arabian Sea, as in other seas, was coastal for a long time. From Herodotus we learn that one Scylax of Caryanda sailed all the way to Egypt from the Indus. He started in *c.* 510 B.C. under the encouragement of the Persian King Darius and it took him two and a half years to complete the voyage round Arabia up to Arsinoe (Suez) at the top of the Red Sea.[3] But for a long time this route was not regularly used. From the time of Ptolemy Philadelphus (285-246 B.C.) measures were taken to improve the Red Sea area. The failure of the Ptolemies in Syria compelled them to find an alternative route to India and other trading countries of the East. Philadelphus did considerable building work to make trading by the Red Sea smooth. Three big ports were built at Arsinoe, Myos Hormos and Berenice, and all of them were connected with the Nile by desert roads having comfortable oases so that imported materials would be conveyed overland to the river and thence taken down-stream to the great international emporium at Alexandria.[4] That these steps to improve trade with Eastern countries, particularly with India, were to a certain extent successful, is indicated by some remote references. The diplomatic exchange between the Ptolemies and the Mauryas was sequel to the regular commerce between India and Egypt.[5] The presence of Indian women, animals and spices in the processions of Philadelphus, as described by Athenaeus suggests a close connection between the two countries.[6] We know from Strabo that Myos Hormos became a great centre of Indian trade.[7] The attempt of Eudoxus to circumnavigate Africa in the later part of the second century B.C. which was certainly made in order to find a route to India that would enable him to avoid the

[1] Bauer—*Precious Stones* (Eng. tr. by Spencer) p.140; La Touche, *op. cit.* II. pp.158-59. Perhaps the earliest literary reference to the trade in Indian diamond is found in the Periplus (56). Ptolemy (VII. Ch.1) locates the source of this object at Cosa near the Vindhyas (McCrindle, *Ancient India as described by Ptolemy*, p.158).

[2] Mackay, *op. cit.*, I, pp 641-43.

[3] Herodotus, II. 158; III. 102; IV. 39, 114. Cary and Warmington, *op. cit.*, pp.61-62.

[4] Rawlinson, H. *op. cit.*, pp. 88-91.

[5] *Age of Imperial Unity*, pp.615-16.

[6] Rawlinson, H. *op. cit.*, pp.93-94.

[7] XVI. 4. 24.

Ptolemies who by this time had monopolised trade in Indian merchandise at least as far as Cape Guardafui.[1]

Before his adventurous attempt to get around Africa Eudoxus had visited India twice under the auspices of the Ptolemies. This merchant from Cyzicus came to Egypt after 146 B.C. during the reign of Ptolemy Euergetes II. He was accepted in the party which was employed by the king to explore the sea-route round Arabia to India. This expedition was much helped by an Indian who happened to be in Alexandria in that time.

This man had set out from India with others but unfortunately took a wrong course. After drifting for months, by which time his companions had died of hunger he was picked up by the Egyptian coast-guards near the entrance to the Red Sea and was brought to Alexandria. He offered his services to the Egyptian government to show the way to India. Strabo, who learnt the story of Eudoxus, from the stoic philosopher Posedonius himself doubts this account of the Indian sailor very much, though we do not know why.[2]

However, Eudoxus's voyage was successful. He revisited India sometimes between 117 and 108 B.C. but on his way back from this trip he was shipwrecked. The north-eastern monsoon blew him to the African coast south of Ethiopia. His next plan was to do business with India on his own because whatever he brought from India in his last two expeditions was confiscated by the Egyptian rulers. This enterprising man left Alexandria and visited a few places which could supply cargoes for Eastern market and finally started from Gades (Cadiz). He sailed in a large vessel with two small boats in tow taking on board some Spanish music girls, physicians and artisans, which perhaps were in demand in India. But the revolt of the sailors, his ship going aground and other troubles did not allow this wonderful mariner to go beyond Morocco. We do not know what happened to Eudoxus afterwards but his ambition of reaching India round the Cape was never accomplished.

The Ptolemaic exactions in the Red Sea instigated Eudoxus to make this attempt. But long before this the need for the circumnavigation of Africa was felt in the Mediterranean world. The trade between this region and India was for a long time,

[1] *CHBE*, VIII. p.61.
[2] Strabo, II. 98-102, Cary and Warmington, *op. cit.*, pp.70, 98-103.

indirect,[1] and well organised intermediaries derived a large profit out of it. They zealously guarded the Erythrean Sea (the Red Sea, and the Arabian Sea up to the Persian Gulf)[2] and were careful that no commercial link should be established between India and the Mediterranean powers. In the earlier period of it was the Phoenicians who played this part of middlemen, but when the Greeks occupied the Eastern Mediterranean region the trade of the Erythrean Sea was under the full control of the Arabs. In these circumstances the only possible means of starting direct business with India remaining out of the reach of the Arabs was to go round the Cape.[3]

The history of the circumnavigation of Africa is rather obscure. Over a long time strong doubts prevailed as to the possibility of this venture, as there were curious beliefs and theories about Peninsular Africa.[4] However, attempts were made to get round this area before and after Eudoxus, though until the time of the Portuguese in the late fifteenth century knowledge about the Cape route and its use was negligible. So far as our discussion is concerned the importance of this circumnavigation gradually dwindled as new developments made direct-trade connection between India and the Mediterranean world possible.

We noticed above the important position held by the Arabs as middlemen in the sea trade between India and the West. Indo-Arab relations seem to have been established long before the period under discussion.[5] The geographical situation and trading

[1] The evidence of a direct link between India and Ptolemaic Egypt is very slight. There is only one epigraphical testimony of the visit of an Indian named Sophon on a shrine between Edfu and Berenice (Rawlinson, H. *op. cit.*, p.99, n.2.).

A silver coin of the time of Ptolemy Soter II has been found in South India *JRAS*, 1904. p.403 (Hultsch, Remarks on a papyrus from Oxyrhynchus).

[2] Erythra means red. Originally the term Erythrean Sea was applied to the Red Sea. With the passage of time its connotation extended over a wider area (Cary and Warmington, *op. cit.*, p.57).

[3] *CHBE*, VIII, p.59.

[4] Cary and Warmington, *op. cit.*, pp.86f.

[5] Islamic Culture, XI (1937) pp. 172-74 (Nadvi, *The early relations between Arabia and India*). The author refers to the Semitic influence in early Indian culture though some of his conclusions are incorrect, such as the statement that the Kharoṣṭhī script bears Aramaic influence, coming through the Arabs. India had contact with other parts of the Semitic world sometimes direct and sometimes through non-Arab peoples of Western Asia.

possibilities of these two countries might be expected to have brought them quite close from fairly ancient times, though the positive evidence of this contract before the Islamic period is almost non-existent. What little we know about them is solely from Western literary sources.

As the Arabs were "astride two of the world's greatest trade routes" by sea, namely the Red Sea and the Persian Gulf, their country's contract with the outside world began in very ancient times. Relations between the ancient civilised parts of Western Asia and countries such as, Dilmun and Magan, which have been tentatively identified with Bahrein and Oman and thus may have been in Arabia, may be traced as far back as the third millenium B.C., with the help of the Cuneiform inscriptions of Mesopotamia. Egyptian boats were also plying on the western coast of Arabia at least from the time of the Fifth Dynasty King Sahure (c. 2470).[1] The first Book of Kings establishes that both by land and by sea trade was going on between the Kingdom of Solomon and South-Arabian State Sheba (Sabaea) in the earlier part of the first millenium B.C.[2] Though there is no positive evidence of Arab sailors of such early times, it may be held from the references made in classical sources to the maritime activities of the Arabs that they had became expert sea-farers long before the Hellenistic period.[3]

But how did the Arabs manage to get materials for building strong vessels necessary for sailing into far off countries? We learn from the Periplus that in the early Christian period there was regular importation of teakwood from Barygaza to Oman.[4] This fact is repeated in other sources also, both earlier and later than the time of the Periplus. Theophrastus refers to the shipbuilding timber found in the island of Tylus (al Baḥrayn) off the Arabian coast. He further states that this kind of wood lasts more than 200 years if kept properly.[5] As there is no such wood in the Persian Gulf region it must have been brought either from India or from Lebanon.[6] But south or east of Suez teak usually came from

[1] *Encyclopaedia of Islam*, New Edition, I, p.547; Hourani, *Arab Seafaring*, pp.6-7.
[2] I Kings, 9: 26-28.
[3] Hourani, *op. cit.*, p.11.
[4] 36.
[5] History of plants, IV. 5.
[6] Lebanese teak was used by ancient Egyptians for ship building (Antiquity, XXI, p.66—(Hornell, *Naval activity in the days of Solomon*).

India.[1] This view is confirmed by the references found in medieval sources. The Arab historian al-Mas'ūdi (tenth century) and the Spanish traveller ibn-Jubayr (twelfth century) mention that ships sailing on the Indian Ocean were built of teak and according to the latter this kind of wood came to 'Aydhab from India and al-Yaman.[2] That cargo boats from India regularly visited the ports of al-Yaman in our period is known from more than one source.[3] Possibly the shipbuilders of Arabia started using Indian teak in far earlier times. Contact between India and Arabia long before the last centuries B.C. may be inferred from a few other indirect sources. The sixth century prophet Ezekiel (XXVII; 21-23) refers to the merchants from Sheba visiting the markets of Tyre with spices, precious stones and gold. These objects are not typically Arabian. Some of them rather smack of India and it is quite likely that they were carried to that ancient city by the Arab intermediaries.[4] To eliminate these middlemen, it is held that Solomon used to send his own ships direct to India (accepting that Ophir was somewhere in Western India) though a round tour took more than 3 years.[5] However, the Indian merchandise that went to the markets of Egypt and Western Asia seem to have usually passed through the trunk routes that well covered the entire Arabian peninsula, Gerrha, which was connected with South Arabia as well as north-western region, was perhaps an important entrepôt for the Indian merchandise going towards the West.[6] Through the famous incense routes joining the southern coast of Arabia with its north-western part passed stones, spices and other luxuries from India and Africa along with the native

[1] Hourani, *op. cit.*, pp 90-91.

Teak, a native product of India (Watt, Commercial products of India, p. 1068) was in demand from foreign countries from very ancient times. We have mentioned above the use of Indian teak in Babylonia. (Supra p. 102).

[2] Mas'ūdi, *Murūj*, (Fr. tr. by De Meynard and De Courteillie) I, p. 365. *Travels of ibn-Jubayr*, (Eng. Tr. by Broadhurst) p.65.

At Timna (Hajar Koḥlān), 140 miles inland of Aden fragments of wood, identified as teak, have been found. The excavated objects here are attributed to pre-Christian period (*JAOS*, LXXX, p. 137, n.5—Van Beek, *Pre-Islamic South Arabian Shipping in the Indian Ocean—a surrejoinder*).

[3] Agatharchides, Ch.102; Periplus, 26.

[4] *Antiquity*, XXI. p.72. [5] *loc cit.*

[6] Strabo, XVI. 4.4, XVI. 4.18; *JAOS*, LXXVIII, p.145. (Van Beek—*Frankincense and myrrh in ancient South Arabia*).

The richness of the Gerrhaeans is mentioned in Agatharchides, Ch. 102.

perfumes.[1] From the Periplus we learn that in the first century A.D. commercial activities between India and Arabia were brisk[2] and this developed situation pre-supposes a continued relation which presumably started long before it was first recorded.

It has been claimed that the boats of different shapes and sizes that ply along the coast of Sind—*kotias*, *baggalas*, *nauris*, *dhangis* —hoist the Arab lateen and bear other evidence of marked Arab influence, and this establishes maritime connections between Arabia and western coast of India from very early times.[3] But we do not know what the ancient Arab boats looked like. Neither the small sewn boats of Omana called *madarata* which are mentioned by the Periplus (36), nor the boat design preserved in the stone monument found near Timna is helpful in this connection.[4]

Except for what we learn from the classical sources there is no other evidence either from India or from Arabia on trade relations between these two countries in the period under discussion. But Arabia's connection with the Mediterranean world and Western Asian countries in the last centuries B.C. can be traced from numerous archaelogical sources, found mostly in Hadhramaut. That Hellenistic influence was strong in Southern Arabia is known from the coin types of the Sabaeans and Himyarites. These coins were imitation of Attic coinage, both of the earlier variety and of the 'new style'.[5] Contact with the Mediterranean is also demonstrated by other finds such as fragments of Corinthian columns and bronze heads, though exactly when and how the inspiration for these entered South Arabia have not yet been determined.[6] The marks of extensive irrigation systems, found in this region, which were carried out similarly to the *qanāt* (subterraneous) water conduit system, show Iranian influence.[7] Thousands of inscriptions have been found referring to the irrigation system of early Southern Arabia.[8] All these data prove the developed agricultural condition of the country in ancient times. There is a strong divergence of opinion on the issue whether it was foreign trade, mainly

[1] Bowen and Albright, *Archaeological discoveries in South Arabia*, p.38.

[2] 27, 30, 31, 54, 57.

[3] *Memoirs of the Asiatic Society of Bengal*, VII, No.3. p.140f. (Hornell, *The origins and ethnological significance of Indian boat designs*).

[4] *JAOS*, LXXX, p.137.

[5] *BMCat*. of the Greek coins of Arabia, Mesopotamia and Persia, pp. xliv f.

[6] Caton Thompson, *The tombs and moon temple in Huridha*, pp.150-51.

[7] *loc. cit*. [8] Bowen and Albright, *op. cit*., pp.43f.

consisting of carrying Indian merchandise to Western Asia and the Mediterranean countries, or the efficient system of irrigation and dry farming that made the ancient Arabs so rich.[1]

However, we are here concerned with trade and it is indisputable that commercial activities in the Arabian Sea and through Arabia brought ample wealth to this country, particularly to its south-western port. According to Agatharchides, the Alexandrian scholar of the late second century B.C., a large number of Indian merchants visited the Sabaean ports to sell and barter their goods to the Sabaean merchants, who in turn sold them to the Egyptians and Greeks at great profit. He further states that the importance and prosperity of Sheba was due to the monopoly she enjoyed of trade with India. Acting as agents between India and the West the Sabaeans became one of the wealthiest nations in the world of their time.[2] This flourishing condition of South-western Arabia in the last centuries B.C. is supported by the Periplus which also mentions the former glory of this area.[3]

Taking full advantage of their geographical position the Arab intermediaries maintained their monopoly in the sea trade between India and the West for some time, but new developments took place in the second or first century B.C. which seems to have affected the privilege they had enjoyed so long. That the trade between Egypt and India by sea was gradually growing is apparent from a few inscriptions found in Egypt. These were issued in the early first centuries B.C. and they refer to a Ptolemaic administrator in charge of the Indian and Red Sea.[4] It may be that since the successful expedition of Eudoxus the Egyptian rulers continued to encourage direct trade with India. We have no information as to the time taken in these trading voyages and whether the route used in them was other than the coastal one. But it seems that with more travelling experience the Western merchants gradually gained knowledge of the monsoons (the south-west for coming towards India and the north-east for a westward voyage) in the Arabian Sea and started utilising them by stages, as is suggested in Pliny.[5] Though till the later part of the first century A.D.

[1] Caton Thomson, *op. cit.*, p.9; *JNES*, XI (1952) p.291. (Hourani, *Did Roman commercial competition ruin South Arabia?*).

[2] Agatharchides, Ch. 102. [3] 26.

[4] Dittenberger, *Orientis Graeci Inscriptiones Selectae*, i. Nos. 186, 190.

[5] VI, Ch.26.

we do not hear of the crossing of the Arabian Sea by Mediterranean sailors with the help of the south-west monsoon,[1] the fastest wind system over this area, there is every reason to believe that they learned of it long before. For direct trade between Egypt and India without the intervention of the Arabs could not be carried safely along the coast.[2] More important is the fact that a quicker and shorter route became necessary for the developing transaction.

Opinions widely differ as to when sailors learned the periodicity of the monsoons in the Arabian Sea and started crossing it direct instead of coasting all the way from the ports situated on the western sea-board of India, to the Strait of Bab-el-Mandeb, and *vice versa*. The south-west monsoon which blows from May to October is the most helpful wind system for the sailors coming from the West to reach the Indian ports. But as it sometimes blows with gale force, to sail with this wind is, to a certain extent, risky. From the evidence found in the classical sources.[3] it is usually assumed that the timing of the south-west monsoon was first observed by Western sailors, who made use of this knowledge sometimes in the last centuries B.C. or in the first century A.D. But there is no cogent reason to doubt that the Arabs and Indians who moved in this region from fairly ancient times became conversant with the wind system of the Arabian Sea long before the sailors from the Mediterranean countries started visiting this region.

A relevant question in this connection is whether the boats used by the ancient Indian and Arab sailors were strong enough for a rather rough south-west monsoon. Before the entry of the Europeans to the Arabian Sea and the Persian Gulf area, boats were built here with sewn hulls, and not nailed ones as was done in the Mediterranean countries,[4] and this method had been practised here for centuries as may be gathered from ancient and medieval sources. In Sanchi sculpture there is representation of

[1] *loc. cit.*

[2] This long coastwise journey was also dangerous as piracy was common in some parts of it [Wheeler, *Rome beyond the Imperial frontiers*, (Pelican Ed.) p.153.] Even the high seas were infested by pirates is known from Pliny (VI. 101) who states that archers used to accompany merchants sailing in the Arabian Sea.

[3] Pliny, VI. 100, 104, 172; Periplus, 57.

[4] Bowen, *Arab Dhows of Eastern Arabia*, p.20.

a boat having planks stitched with a cord.[1] The Periplus refers to the export of sewn boats called *madarata* from Ommana, a trading town of Southern Persia, to Arabia.[2] Rhapta in Eastern Africa was also a centre where sewn boats were built in the early Christian period.[3] That the Arabs were using this type of boat up to medieval times is evident from the writings of al-Mas'ūdi, ibn Jubayr, Marco Polo and Ibn Batūta.[4] Mas'ūdi's argument that iron nails were not suitable in the corrosive water of the Arabian Sea does not sound convincing.[5] The advantage of sewn boats compared to iron bolted vessels is stated by Jubayr and Batūta. If run on to reefs the sewn boats were less liable to break as the cord would yield a little. The Arab sailors made the hulls of their boats supple by applying shark oil to them. The danger of using iron in ocean-going vessels is stated in the medieval Indian account of Bhoja who believed that magnetic rocks in the sea would drag such boats to their doom.[6] Though some of these sources do not present very convincing grounds for the avoidance of iron nails by the Arabian and possibly Indian shipbuilders[7] it is obvious that the sewn boats survived as they proved themselves quite suitable vehicles for all-weather travelling. The sturdiness and flexibility of this type of boat made them capable of being used on the high seas with heavy cargoes, and perhaps in pre-Islamic times the Indonesians visited Madagascar in sewn boats.[8] We think some scholars have underestimated the strength of such boats in holding them unfit for sailing in the Arabian Sea during the south-west monsoon period.[9] Moreover, the technical difference between sewn boats and nailed boats was not great. If the Arabs and Indians found their conventional boats unsuitable for heavy seas they could have changed their method of construction.

[1] Marshall and Foucher, *The monuments of Sanchi*, II, pl. 51.

[2] 36. [3] *op. cit.*, 16.

[4] Mas'ūdi, *op. cit.*, I., p.365. Jubayr, *op. cit.*, p.65. *Marco Polo* (Yule's edition), i, p.102. *The travels of Ibn Batūta* (Eng. tr. by Lee) p. 178.

[5] The chemical difference between water of the Arabian Sea and that of the Meriterranean is slight. (Hourani, *Arab Seafaring*, p 96).

[6] Mookerji, *Indian Shipping*, p.21.

[7] Hornell, *op. cit.*, pp. 217-18. The Indian sources are not very helpful in this connection but from the travel-account of Batūta and from circumstantial evidence it seems that the Indian boats plying on the west coast were similar to their Arabian counterparts.

[8] *JAOS*, LXXX, p.137.

[9] Hourani, *op. cit.*, pp. 27-28 and *JAOS*, *op. cit.*, p. 136.

The use of proper types of sails is also essential for smooth navigation. And it seems that like their Mediterranean counterparts the ancient vessels plying on the Arabian Sea had square sails which was used in this region even up to the last century.[1] Boats with such sails could go before the wind though they could not beat into the wind, and this made them quite suitable for voyages with the south-west monsoon.[2]

When the Mediterraneans began sailing with the fast-blowing south-west wind to reach India quicker, they certainly took some risk, but it was not an exceptional feat as has been suggested.[3] The south-west monsoon which blows over the Arabian Sea for six months starting from May is really dangerous along the coast, especially from June to August.[4] According to the Periplus (39, 49, 56) and Pliny (VI. 104) Mediterranean sailors for India left Egypt in mid-July and it took them about a couple of months to arrive there.[5] In September, when they reached the Indian ports, the peak period of stormy weather is almost over along the coast, therefore, we may hold that the sailors of Arabia and India utilised the south-west monsoon without much risk before the Greeks and the Romans arrived on this region.

Whether the Mediterranean people collected the information about the principle of monsoon navigation from the older sailors of the Arabian Sea or that they had to learn their own lessons at the cost of experience is difficult to determine. It is quite likely that the Arabs of Hadhramaut who as middlemen, were deriving the greatest benefit from the trade between India and the Mediterranean countries kept their knowledge as a trade secret from their new rivals,[6] and the Westerners had to 'discover' it to find the quickest way to reach the Indian ports.

In the Western world the south-west monsoon came to be known as Hippalus after the name of the sea-pilot who, according to the *periplus*, (57), made the maiden voyage to India right across the Arabian Sea "by observing the location of the ports and condition of the seas." Pliny (VI. 100, 104) also calls this monsoon

[1] *American Neptune*, XII, pp.217-18; XVII, p.288.

[2] *JAOS*, LXXX, p.138. [3] *Op.cit.*, p.136.

[4] *Winds, Weather and currents on the coasts of India and the laws of storms*, Calcutta 1931, pp.3-10. (Govt. of India Publication).

[5] *JAOS*, LXXX, p.139, n.24.

[6] *JAOS*, LXXVIII, p.147, n.41; Warmington, *op.cit.*, p.47.

Hippalus. But Hippalus is also used as the name of a headland in North-eastern Africa by the same author (VI. 172) and the geographer Ptolemy (IV. 7. 12) gives the same name to a sea. The use of the south-west trade wind by the Mediterranean sailors to reach India through the high seas did not occur all at once but by stages, as suggested by Pliny (VI. 96-107). The statement in the Periplus that a sailor called Hippalus discovered how to use the south-west monsoon on the outward voyage to India may or may not have any historical basis,[1] but the significant point here is that by the time of the Periplus and Pliny the Mediterranean sailors had begun utilising the monsoon. We should try to determine the probable time when the Westerners started doing this, in other words, the date of the discovery of Hippalus, as it has some important bearing on the history of the Indian trade.

Neither the author of the Periplus nor Pliny suggests a date for Hippalus but from the evidence at our disposal it seems that he used the south-west monsoon to visit India a considerable time before it was recorded. That Hippalus was not a contemporary figure can be inferred from these writers.[2] In Pliny's account (VI. 100-106) of the development of navigation between the Red Sea and India there are four stages:

(1) the long and tedious journey along the coasts of Arabia and Carmania, which was followed by the admirals of Alexander;
(2) crossing a bit of open sea—1332 miles—from Syagros (Ras Fartak) in South Arabia to Demetrias—Patala at the mouth of the Indus, with a west wind, the native name for which is Hippalus;
(3) following "a shorter and safer route" from South Arabia to the harbour of Sigerus[3] (Jaygarh);
(4) after a long time a route direct from the Strait of Bab-el-Mandeb to Muziris and other South Indian ports was discovered.

By the last route Arabia could be avoided altogether.[4] Thus

[1] Tarn, *op.cit.*, p.369. [2] Wheeler, *op.cit.*, p.154.

[3] It is identified with Meli-Zigara of the Periplus (53) and Meli-zegyris of Ptolemy.

[4] Tarn, *op.cit.*, p.368.

Pliny's report presents us with a distinct picture of the gradual progress in the increasing use of the open high seas by the sailors coming from the West to India with the help of the monsoon and it seems reasonable to think that considerable time elapsed between the second stage when Hippalus is first mentioned and the last stage of maritime development which was reached in Pliny's own time, the later part of the first century A.D. Scholars differ much among themselves on the time lag between these two stages, as their opinions as to the date of Hippalus vary from mid-second century B.C. to the time of Claudius (A.D. 41-54).[1]

There is evidence which suggests that trade between India and the Mediterranean countries was brisk during certain parts of the first century B.C. This situation seemingly arose following the discovery of Hippalus, and in that case we may approximate the date of this pioneer a little before or sometime during the first century B.C. We have noticed above a few Egyptian inscriptions of the early first century B.C. which indicate Ptolemaic concern for their growing trade with India,[2] and this fact may be connected with the discovery of Hippalus which should have given an impetus to the trade between India and the West.[3] On this account it has been suggested that perhaps Hippalus was the pilot of the voyage organised by Euergetes II (B.C. 146-17), to which Eudoxus of Cyzicus was attached as a royal trade commissioner. The ship-wrecked Indian who was recovered by the Egyptian guards from the Red Sea and who later acted as a guide to this voyage probably took the help of the south-west monsoon to reach India.[4] If the old coastwise route was intended to be followed there was no need for the guidance of an Indian sailor. Poseidonius, who is Strabo's source for the account of Eudoxus, is silent about Hippalus or the particular route followed in the two voyages to India made by Eudoxus and this may be due to the fact that main interest of Poseidonius was centred round Eudoxus's attempt to circumnavigate Africa.[5]

[1] Rostovtzeff, *SEHHW*, II, pp.928-29; Tarn, *op.cit.*, 369-70; Kornemann, *Janus*, I, p.55; Otto, *Pauly Wissova*, Col. 1660-1; Warmington, *op.cit.*, pp.44-47, Wheeler, *op.cit.*, pp.155-57; *Classical Quarterly*, 1928, pp.94-96 (Charlesworth—*Some notes on the Periplus Maris Erythraei*).

[2] Supra, p.226. [3] Rostovtzeff, *loc. cit.*

[4] Otto and Bengtson, *Zur Geschichte des Niederganges des Ptolemaerreiches*, (1938) pp.194 f.

[5] *loc. cit.*

Strabo's statement that 120 ships were sailing annually(?) to the East from Myos Hormos alone in the time of Augustus, compared to the very few which sailed in the Ptolemaic period[1] does not go against the above hypothesis. Strabo is rather vague as to which particular Ptolemaic period he has in mind. The last years of the Ptolemies, when Egypt's trade with the outside world was very small owing to political disorder, were near to his own time and his account may be related to that period. And there is no doubt that under favourable circumstances India's trade with the West reached a peak period during Augustus's reign, when we think the fourth stage of Pliny began. This view is supported by the archaeological evidence found at Arikamedu near Pondicherry which bears etymological resemblance to the *Podoukē* of the Periplus and the *Pōdukē* emporion of Ptolemy.

There, in the remains of a warehouse, 150 sherds of Arretine ware, a few pieces of Roman glass, some terracotas of the first century and some wine amphorae were found.[2] Arretine pottery was first manufactured in the West by c. 30 B.C. and apparently went out of fashion before the forties of the next century.[3] It is quite likely that these objects were brought to India in the earlier part of the first century[4] by which time we may postulate that considerable trade between the Mediterranean countries and South Indian ports was carried on regularly with the help of the South-west monsoon (Hippalus).

As the author of the Periplus betrays a relative ignorance of the ports on the Coromandel coast compared to those of Malabar, some scholars hold that the Arretine ware came to Arikamedu in Indian vessels.[5] Though a land route from the Malabar up to the mouth of the Kaveri may be traced[6] it does not seem likely that these objects were unloaded on the western coast and thence carried eastwards. For this system of double transport to a coastal

[1] II. 5.12; XVII 1 13.

[2] A.I. ii, pp.17 f.

[3] Wheeler, *op cit.*, pp.156-57.

[4] Wheeler, *loc cit.*

[5] Charlesworth – *Roman trade with India* (a Ch in *Studies in Roman Economic and Social History in honour of A C. Johnson,* Ed. Colemen-Norton) pp.135-36. The author thinks that before the end of the first century A.D. boats from the Western countries did not visit the eastern side of the Indian peninsula. *The scarcity of the first century coins amidst large hoards of Roman* coins found in Ceylon is cited as an evidence to this supposition.

[6] *A.I.* II, p.117. (Map of distribution of Roman coins).

place like Arikamedu which was perhaps an entrepôt for trade with South-eastern Asia and China,[1] was certainly not economic.

According to our estimate, as stated above, it took rather a long period, from the time of Euergetes II to the Augustan period to cover the last three stages of Pliny in the development of maritime relations between India and the Mediterranean countries with the progressive use of the monsoons. But during this period, political conditions in the West were not always favourable to steady and vigorous trade activities with lands across the Arabian Sea. We think that the Arikamedu finds do not support the dating of Hippalus as late as the forties or fifties of the first century, and that a stray incident, like that of the Red-Sea tax collector Annius Plocamus's freedom who was carried out of his way from Persia to Ceylon during the reign of Claudius (A.D. 41-54),[2] need not be accepted as an evidence of wide-spread ignorance of the use of the south-west monsoon at that time.[3]

What happened to the commercial interest of the Arabs that they had enjoyed for generations as inter-mediaries, as a result of the gradual establishment of direct trade connections between India and the Mediterranean countries? Did the increase in Graeco-Roman trade in the Indian ocean automatically diminish the functions of the Arab traders in this region or had all of them sufficient scope in the rapidly developing trade between India and the West? When the decline in South Arabian economy began in the pre-Islamic period is not easy to determine as no direct

[1] See Supra, p. 79 n.2. [2] Pliny, VI. 84.

[3] In estimating the date of this maritime development we have based our view on the time-indications of Pliny. There is no other source to check his calculation of "a generation", "a long time", and "not very long"—before he wrote, the respective durations of time Pliny allows to the last three stages. However, Warmington's suggestion of thirty and odd years, between the early days of Tiberius (A.D. 14-37) and 50 A.D., seems to be too short a period to cover them.

An Egyptian inscription (*Journal of Roman Studies*, XLIII, 1953, pp.38 f) speaks of one Annius Plocamus of the time of Augustus. It is not clear whether Pliny makes a mistake in dating his Plocamus in Claudius's time or whether he was a different person. In any case this incident does not help us to determine the date of Hippalus (Warmington, *op.cit.*, p.47; Wheeler, *op.cit.*, pp.155-56). Rather we should depend upon more reliable evidence like that of the Arikamedu objects which establish that boats from the West were coming to South Indian ports with the help of the south-west monsoon long before 50 A.D.

evidence on this topic exists. It has been suggested that the entry of the Mediterranean powers especially of the Romans in the Indian ocean "sounded the knell of the South Arabian prosperity"[1] But from the Periplus and other indirect evidence we may infer that Arab trade was not appreciably hampered, at least up to the end of the first century A.D. The destruction of Aden not long before the time of the Periplus[2] and the expedition of Aelius Gallus to South-west Arabia in c. 25 B.C.[3] remind us of the long drawn-out feuds among the Portuguese, Dutch and English East India Companies in the sixteenth and seventeenth centuries, but subsequent events indicate that this analogy does not go far. From the Periplus we learn that the port-towns like Muza on the coast of Yemen and Cane in Hadramaut were busy doing brisk trade with Egypt, East Africa, India and Persia in the first century A.D. The same text also reports the exchange of embassies and gifts between the Roman Emperors and the king of the South Arabian peoples—the Homerites and their neighbours the Sabaeans—in its time. Socotra was then a dependency of the "king of the frankincense kingdom" (South Arabia).[4] The Nabataean cities, which were in a flourishing condition until the time of Trajan (A.D. 98-117), owed their prosperity to a certain extent to the South Arabian caravan traffic. For the latter, carrying indigenous and foreign (Indian and East African) goods, passed through these cities in Northern Arabia on their way to Syria and Egypt.[5] These facts do not suggest a set-back in trade in South Arabia even long after the establishment of direct maritime contact between India and the Mediterranean countries. Perhaps the decline in this trade ensued with the general shrinkage in the Roman demand of oriental luxuries which began after the reign of Marcus Aurelius (A.D. 161-180)[6] But the Arabs soon resumed their function as middlemen, when, along with the

[1] Hitti, *op.cit.*, pp.58-60; Bowen and Albright, *op.cit.*, p.35.

[2] Periplus, 26. Hourani thinks that what the author of the Periplus means is that Aden was 'subdued' and not 'destroyed' as has been translated by Schoff (*JNES*, XI, p.194, n.15). However who destroyed or subdued Aden is not clear from the Periplus.

[3] Strabo, XVI, 4. 22.

[4] Perplus, 20-34. The South Arabian kings mentioned here have not been properly identified (Rawlinson, H. *op.cit.* pp.112-13.)

[5] *JNES*, XI. p.293.

[6] *JNES*, *op.cit.*, pp. 294-95; Warmington, *op.cit.*, pp.136-37.

Axumites, they took charge of the traffic across the Indian Ocean.[1]

It is rather strange that none of the early Indian sources offers any hint of the prolonged contract between India and Arabia in ancient times, unless we include the latter within the wide cover of the term *yavana*. That the Indians regularly visited the ports of South Arabia and East Africa and that some of them settled in Socotra in the first century is evident from the Periplus.[2] It is quite likely that in their voyages to places they used the large *saṅgara* type boats which the author of the Periplus noticed on the Malabar coast.[3] In the Prakrit text *Aṅgavijja* we meet a kind of boat called *saṅghāḍa*.[4] Though both the texts tell very little about these boats except that they were fairly large, it seems they refer to the same type of vessel.

With the entry of the Romans into the Indian Ocean a very bright period of early Indian foreign trade began. The Roman occupation of Egypt and the subsequent measures adopted by the Augustan administration to enforce peace in the Mediterranean world helped a great deal to develop smooth transactions between India and that region. For the next few centuries India, along with a few other oriental countries, found a steady market in the West. According to the Western accounts the aristocrats of Rome became very fond of luxury products from the Eastern countries whose traders did not scruple to demand a very high price for their ware.[5]

Quite a number of works dwelling on different aspects of India were produced in the Western world as a result of the growing trade between India and the Roman Empire, but we should be cautious in dealing with them as some of them were

[1] Warmington, *loc.cit.*

[2] The Indian traders perhaps also visited Madagascar: According to tradition the ancestors of the present natives of this island went from Mangalore. (*Age of Imperial unity*, p.620).

[3] 60. [4] Ch.33, p.166 (15).

[5] Pliny (VI.101) complains that India alone absorbs from Rome 50 million HS (£425,000, Loeb's Pliny II, p.416) by selling merchandise at a hundred times its original cost. Even if Pliny is correct in his figures we do not know who made the most out of the Indo-Roman trade. As far as it can be gathered it was the Roman traders who carried the Indian goods home and sold them to the consumers there.

Moreover, we should be sceptical about high figures quoted in ancient texts as they have often a moral connotation (Charlesworth, *op.cit.*, p.137).

based on indirect information. Of these the most reliable and helpful is the Periplus which confirms and complements the evidence on Indo-Roman trade supplied by the large number of Roman coins of the imperial period found in India. Most of these coins—*aurei*, *denarii*, and *sestertii*—have been unearthed in South India, which undoubtedly supplied most of the commodities for export.[1] The Periplus, however, mentions a long list of commodities that went out of the country through ports situated on the Indus delta and on the coast of Gujarat.[2] The rarity of Roman coin finds in Northern and Western India is evidently due to other reasons which we shall discuss presently. It seems, however, that the export trade even from Upper India was conducted in the Roman period more by sea than overland, though it is not possible to detrmine their respective proportions. The trouble caused by Parthia on the land route, which we discussed above, and the improved knowledge of sailing in the Arabian Sea helped to develop the maritime connection between India and the West. Of course this traffic by sea was not always direct. Sometimes the boats from the Western Indian ports went up to the Persian Gulf[3] and thence the merchandise was carried further west formerly through Petra and in the later period through Palmyra, which in the third century grew into a very prosperous international mart.[4]

That the rulers of different parts of India took a keen interest in establishing and developing close relations with the Roman Empire is evident from numerous classical accounts which inform us of visits paid by Indian embassies to the West. The satisfactory identification of the states which sent these missions abroad in our period has not yet been possible. An Antioch a few members of such an embassy were seen carrying a letter, written in Greek, from one Porus to Caesar Augustus. This Indian ruler who, according to Strabo, lorded over 600 kings, i.e. petty chiefs, promised the Emperor full cooperation for all kinds of 'honourable' pursuits.[5] As the term Porus was ascribed to an Indian

[1] *JRAS*, 1904, pp.594-95 (Sewell—*Roman coins found in India*).

[2] 38, 39, 43-53.

[3] Charlesworth—*Trade routes and commerce of the Roman Empire*, p.67.

[4] We have stated above (pp.111-12) the importance of Petra which was also used by the overland traffic passing through Southern Persia and Kabul.

Palmyra, during the second and third centuries gradually outshone Petra (Warmington, *op.cit.*, pp.92, 136 f).

[5] Strabo, XV. 1. 73.

king almost as a "generic name" in contemporary Greek writings, and as there is practically no clue to approximate when during Augustus's reign the embassy in question visited the Roman Empire we cannot ascertain who was this Porus. Nor are we definite as to the route followed by this particular mission, though it has been suggested that they sailed from Barygaza, perhaps relying on the information that a monk from this place accompanied them.[1] From the same source we learn of one Pandion, obviously a South Indian king of the Pāṇḍya realm, sending presents and gifts to Augusts. From coin distribution and the list of exports furnished by the Periplus it is evident that embassies or trade missions, from different parts of India visited the Roman empire. There is no other known source to help us in this matter except the *Hou-Han-Shu*, from which we learn that Vima Kadphises (Yan—ka'o—t'chen) started trading with the Roman Orient (Ta-ts'in) after conquering India.[2] There is no doubt that many of the contemporary rulers of Western and Northern India, who are well known in the political history of the period, tried to establish contact with imperial Rome in order to foster their trade. Though we have not got a full record of all the Indian embassies visiting the empire it seems such groups went there for a few centuries from the time of Augustus in whose reign frequent missions from India are reported.[3] After him at least eight more Roman emperors up to Constantine received such visitors as is known from Dio Cassius and a few other writers.[4]

It has been suggested that a proper investigation into the activities of these embassies may reveal that treaties of some kind were signed between the Roman and the Indian powers for conducting trade smoothly.[5] Sometimes we meet the term *emporion* which is generally used by Strabo, Pliny, the Periplus and Ptolemy to indicate a trading port, being qualified by adjectives *nomimon*[6] or *enthesmon*[7] meaning legal. We also find that some of the harbours were of "approved" (*apodedeigmenoi*) type.[8] These words indicate that there were certain harbours and emporia

[1] Strabo, XV. 1. 4., Rawlinson, *op.cit.*, pp.107-108.

[2] Ch. 79, 90A.

[3] Warmington, *op.cit.*, p.35.

[4] Charlesworth, *Roman trade in India* (a Ch. in Studies in Roman Economic and Social History in honour of A.C. Jhonson, Ed. Coleman-Norton). p.140. n.22.

[5] Charlesworth, *op.cit.*, pp.139-43.

[6] Periplus, 4, 21, 35.

[7] *op.cit.*, 52.

[8] *op.cit.*, 1, 32.

where interests of the foreign traders were preserved through agreements which were possibly established through the above mentioned embassies. But from the existing sources we cannot come to a satisfactory conclusion on this point.

These missions carried for the Roman rulers presents and gifts usually consisting of exotic goods and animals strange to the Western world. The embassy to Augustus, which was seen at Antioch, brought with it precious stones, elephants, tigers, snakes, partridges etc., and was accompanied by curious and unusual fellows such as a monk, who burned himself at Athens, and an armless boy.[1]

The nature of these presents has roused the suspicion of scholars who describe them as wretched and unbecoming from sovereigns of large kingdoms. According to them the mission of the type described above, resembles more to a body of trade agents rather than that of royal representatives.[2]

There are many difficulties in making a full assessment of the early commerce between Rome and India. We can trace continuous relations for about four centuries, but the items and particularly the volume of commodities exchanged are often indeterminate, especially in the later phase of the trade. Apart from the information about exports and imports that is collected from the literary sources we learn something on this topic from the wide distribution of imperial Roman coins in India, found either stray or in hoards.

As stated above the largest number of these coins have been found in southern part of the country,[3] from where the greater amount of the merchandise exportable to the West was collected. The beryl mines of Coimbatore may be cited as an example.[4] Among the coin finds in Southern India the early imperial issues are abundant, the majority of them belonging to the reigns of Augustus and Tiberius. It seems that the inflow of Roman coins issued till the time of Nero was regular in this part of the country but very few coins of the later period have been found. The

[1] Strabo, XV. 1. 73; Dio's, *Roman History.*, Bk.54. 9.

[2] Priaulx, *op.cit.*, p.79.

[3] Out of 68 finds of Roman coins in the Indian subcontinent, 57 come from the Deccan and South India (Wheeler, *Rome beyond the imperial frontiers*, p.165).

[4] AI, II (1946) p.116.

finds in Upper India are perceptibly rarer than those of the south but they cover a wider period, from the late Republican time almost to the last days of the empire.[1]

We may reasonably infer that this variation in the distribution of Roman coinage in India represents the trend of Indo-Roman trade in this period. But recent researches have shown that the date of issue of these Roman coins and the date of their entry into countries beyond the imperial frontiers was not necessarily very close. Sometimes they differed widely even after allowing a reasonable period for coin drift. This happened particularly after the reform of Roman currency in 64 A.D. by the Emperor Nero.[2] At this reform the denarius was overvalued far above its intrinsic worth and the weight of the aureus was also reduced.[3] After this step was taken the pre-reform coins turned into "optimum" ones for foreign consumption, as outside the empire the Roman coins were valued for the pure metal they contained. That is why, for foreign payment the Roman traders had to use their pre-reform coins which had no higher purchasing power than the post-reform overvalued coins in the home market.[4] On this basis we cannot agree with Sewell that the Indo-Roman trade gradually declined after Nero and after Caracalla it completely stooped.[5] He has tried to substantiate his opinion further from some aspects of the Roman life after Nero, such as the adoption of austerity measures by certain Emperors who disapproved of indulgence in oriental luxuries by the rich people of Rome, and the political instability due to quarrels over succession and war abroad. Thus Vespasian (A.D. 69-79) who himself led an unostentatious life, urged his people to cultivate the

[1] We have based our opinion on the revised coin list and the distribution map published in AI.II (1946) pp.116-21. Sewell (*JRAS*, 1904, pp.591 f) who first made an exhaustive study of these coins held views which can no longer be entertained on account of later excavations. Moreover, some of his conclusions are not strictly historical, though as a pioneer study his work is very helpful.

[2] MacDowall, *Numismatic evidence for the date of Kaṇiṣka* (Paper in the SOAS Seminar). He has based his opinion on Bolin's analysis of Roman coins published as "*State and Currency in the Roman Empire up to 300 A.D.*", pp.51 f.

[3] The weight of dinarius was reduced from 3.99 gm. to 3.41 gm. and 10% copper alloy was mixed with silver. Aureus was reduced in weight from 7.96 gm. to 7.39 gm. (Mattingly, *Roman Coins*, pp.122-23).

[4] MacDowall, *loc. cit.*

[5] *JRAS* (1904), p.593.

"simpler habits of the Plebeians" and he was to a certain extent successful in bringing about a puritanical atmosphere in the state. This trend, according to Sewell, continued more or less for the rest of our period, and instead of luxuries essential goods like cotton products were imported from India, as is proved by finds of post-Nero coins in the cotton growing districts in Maharashtra. Added to this were frequent disturbances at home and abroad largely caused by the weakness and incapacity of some of the later rulers. All these factors acted as a strong deterrent against oriental trade.[1] *But from the writings of later historians it becomes obvious that these facts have been unduly emphasised and that* there was no perceptible decline in Rome's oriental trade, at least up to the time of Marcus Aurelius (A.D. 161-180).[2] They prefer to think that in the later phase much of the Indo-Roman trade was conducted on a barter system which accounts for the paucity of Roman coins in that period. This view is supported by the evidence found in Philostratus's life of Appollonius of Tyana, a work of the early third century A.D. According to this text Indian goods were exchanged mostly against Egyptian goods.[3]

However, the situation in Northern and to a certain extent in Western India is somewhat different. The rarity of Roman coin-finds in the north is confirmed by the Periplus. It states that through Barygaza and the Malabar port foreign coin were imported to India but no such entry is reported through Barbaricum on the Indus delta.[4]

In ancient times foreign coins entered a country in large numbers usually for their intrinsic worth, but sometimes they acted as the medium of exchange in areas where coined money was not in circulation. In the former case the coins were usually made of precious metals. It has been suggested that in some parts of Southern India Roman coins were used as a local currency.[5] This question needs a stricter scrutiny but as this region is beyond our scope we shall leave it here. In Northern India conditions were not similar. A regular currency of varied denominations covered this region from the time of the Indo-Greeks, and gold coins in considerable number were issued continually for a few

[1] *JRAS. op.cit.*, pp.600-607.
[2] Rawlinson, H, *op.cit.*, p.127; Warmington, *op.cit.*, pp.294 f, 89 f.
[3] Bk.III.35.
[4] Compare 49, 56 with 39.
[5] *JRAS, op.cit.*, pp.614-15, Wheeler, *op.cit.*, p.167.

generations from the reign of Vima Kadphises. If aurei or denarii entered India on a large scale they were surely brought as bullion. Though often it is suggested that the aurei imported to Northern India were mostly absorbed by the Kuṣāṇa mints for their own gold coins, there is hardly any positive evidence to establish this convenient equation.[1] We believe that the nature of the foreign trade in Upper India was different from that in the south and perhaps there lies the cause of the rarity of Roman coin finds in this region. It seems from the nature of objects excavated in Begram and to some extent in Taxila that foreign trade in North India was not mainly of a terminal type, as it was in the south.[2] Transit trade—wares going both to East and West—in heavy quantity was carried on through this region, contributing to the prosperity of the local merchants and government. In such a trade the intervening State profits from customs and octroi duties and the local people get opportunities to play the part of middlemen. As merchants of various nationalities, Chinese, Indians, Bactrians, Parthians, Armenians, Arabs, Abyssinians and diverse peoples under the Roman empire participated in this trade passing through the Kuṣāṇa realm, we should expect that levies and duties were paid in universally accepted currencies of that time or in bullion or by leaving a small share of the merchandise itself. Some scholars think that traders from Western Asian countries brought gold to buy goods in these international marts and that part of this precious metal went into the Kuṣāṇa treasury.[3] Some Kuṣāṇa, Roman and local coins have been found in different excavated sites near these trade centres but they do not suggest much. Rather it seems, particularly from the nature of the objects found in the storeroom at Begram, that a part of the merchandise was accepted as duties.[4] Under these circumstances we do not see much possibility of a large inflow of coins of a particular country, Rome or any other to North India. No doubt a large portion of the Eastern commodities exchanged in these marts ultimately was consumed by the Romans but these goods passed through many hands before they reached Rome or other parts

[1] We have discussed in appendix A the probable sources of gold open to the Kuṣāṇas.

[2] Wheeler, *op.cit.*, pp.188-90.

[3] *JRAS*, 1912(2) pp.994-95 (Kennedy—*The Secret of Kaniṣka*).

[4] *Antiquity*, XXVI (1952), p.191.

of the empire. In the absence of direct trade between North India and the Roman empire on a large scale it is no wonder that Roman coin finds in that part of India are relatively few.

From the Periplus we find that the port Barbaricum was quite busy importing and exporting goods. Presumably business through this and other ports on the Indus delta was conducted long before and after this report was written. But we have no clue to determine whether direct sale and purchase or a barter system was resorted to in these transactions. A few Roman coins of the later period, from the second century onwards, have been found in Eastern India.[1] We shall discuss the foreign trade through this part of the country while dealing with Sino-Indian trade.

The Indo-Roman trade has been discussed in detail by scholars mostly depending on the Western sources. Many of the important conclusions in these studies are based on the assumption that the Western sailors learnt the use of the south-west monsoon (Hippalus) sometime in the middle of the first century A.D. and from that time the commercial connection between India and the Roman empire became closer. We have stated above the reasons why we believe that the discovery of the Hippalus was much earlier. Unfortunately the Roman coins found in India are not always very helpful in determining the respective dates of different phases of Indo-Roman transactions. However, only after the establishment of peace and order in the Mediterranean region by Augustus did full scale trade between India and the West become possible. With the development of her economic condition Rome's demand for oriental goods, consisting mostly of luxuries, gradually increased to the point of extravagance. From the lamentations of some classical writers such as, Pliny[2] and Dio Chrysostom,[3] we learn that the lust for oriental fancy products caused a shocking drain on the Roman resources, though we should be careful about the figures they quote. For the first two centuries of the Christian era Romans could afford this indulgence in luxury, being masters of the richest parts of Europe, Africa and Asia and enterprising enough to develop and exploit the immense natural resources—fertile land, extensive pastures, unworked mines and quarries, virgin forests—contained within their empire.[4] The ownership of very rich gold mines of

[1] *JRAS*, 1904, p.620.
[2] *VI*, 101, XII. 84.
[3] Bk. LXXIX (Loeb ed ).
[4] Rostovtzeff, *Rome*, p.257.

Egypt, Spain and Dacia[1] allowed Rome to mint sufficient number of aurei to conduct brisk trade within the empire and beyond it. But except that in foreign countries Rome found a market for her manufactured goods, Roman economy did not derive much benefit from trading with them.[2] Her oriental trade, as is revealed by its adverse balance,[3] was undoubtedly a great liability, but the Roman emperors were keen on maintaining regular and smooth traffic with India and other Eastern countries. Some of them took positive measures to keep the route to India unobstructed. Thus Trajan's improvement of the canal connection between the Nile and the Red Sea and his maintenance of a Roman fleet in the latter area, and the peaceful policies followed by Hadrian even at the cost of surrendering certain political rights in Western Asia, are all connected with the purpose of maintaining an uninterrupted trade with the East. As a result of these and similar measures, Rome's commerce with China and India was quite intense from the time of Trajan almost up to the death of Marcus Aurelius.[4] But was there any larger motive behind these imperial policies, or were they adopted merely to maintain an open passage for importing Indian precious stones and spices so that the Roman citizens could continue their luxurious living? We know from Western authors that imperial Rome nurtured the wish to occupy Arabia, Babylon, Bactria, India and China.[5] That a rich country like India which lured foreign invaders from very early times would also rouse the ambition of powerful Roman emperors is no wonder. We know of Trajan's strong desire to repeat the achievement of Alexander in India and to do it with more lasting success.[6] But circumstances beyond their control never allowed the entry into India of the 70,000 Roman troops with which, according to a classical estimate, a commander like Pompey or Caesar could easily have occupied the land.[7]

We have seen above that up till the reign of Marcus Aurelius (A.D. 161-180) trade between Rome and the oriental countries was at a high level. But from the last decade of the second century, Rome became involved in long drawn-out political trouble, in which the army got the upper hand. This unstable situation

[1] Sutherland, *Gold*, p.98.
[2] Rostovtzeff, *op.cit.*, p.263.
[3] Warmington, *op.cit.*, pp.272 f.
[4] Warmington, *op.cit.*, pp.96 f.
[5] Statius, *Silvae*, IV. I. 40-42.
[6] *Dio's Roman history*, LXVIII, 29.
[7] Plutarch, *Pompey*, LXX.

lasted throughout the third century and brought in its wake serious social and economic crisis.[1] Naturally the oriental traders lost a considerable part of their lucrative market in the West. The massacre of the Alexanderians by Caracalla probably dealt a great blow to the direct sea trade between India and the empire.[2] Possibly this trade passed into the hands of the Arabs, especially those of them who had settled in Axum.[3] But as Palmyra remained flourishing almost until the end of the third century it seems that the oriental trade with the West through the Persian Gulf and by the land route survived to some extent.[4] A few Roman coins of this late imperial period have been found in Northern India.[5]

We gather very little from Indian literary sources about Upper India's trade with the Western world. Only in the *Milindapañha*

[1] Rostovtzeff, *Rome*, pp.266 f.

[2] Rostovtzeff, *SEHRE*, I, pp.417-18. Warmington, *op.cit.*, p.136.

[3] The Axumites, who gradually established themselves as efficient middlemen in the trade between the East and the West, originally came from al-yaman and Hadramawt by the beginning of the first century A. D. (Hitti, *History of the Arabs*, pp.56-57).

[4] Warmington, *op.cit.*, p.137.

[5] Here is a list of Roman coins found in Northern and Western India. [Collected from AI II (1946) pp 116-121 and *JRAS*, 1904, pp.620 f].

Denarius of Tiberius (d.A.D. 37)—found at Taxila (*N.W.F.P.*)

Hoard of denarii, the latest of Hadrian (d.A.D. 138) found at Hazara (*N.W.F.P.*)

5 aurei, the latest of A.D. 158-89 found at Rawalpindi (Punjab)

7 denarii of the late Republican period with Kuṣāṇa coins of the first and second centuries A.D.—found at Rawalpindi (Punjab).

3 aurei, the latest of Antoninus Pius (d. A.D. 161) found at Jalabad (Afghanistan).

Aureus of Lucius Verus (A.D. 166-67) found at Surat (Gujerat)

18 aurei of Commodus-Severus (d. A.D. 211) found at Sholapur (Maharashtra).

18 aurei of Commodus (d.A.D. 192) found at Bilaspur (M.P.)

Aureus of Caracalla (d. A.D. 217) found at Mathura (U.P.)

Coins of Diocletian (A.D. 284-93) found at Allahabad (U.P.)

Copper coins of Diocletian (A.D. 283-93) found at Farukkabad (U.P.)

Copper coins of Numerianus (A.D. 283) found at Mirzapur (U.P.)

*Coins of Carinus (A.D. 283-84) found at Mirzapur (U.P.)*

Hoard of aurei, the latest of Constantine (d.A.D. 361) found at Singhbhum (Bihar).

(The reports are not always complete. Sometimes they do not mention the number of coins constituting a hoard or the number of stray coins discovered in a place or the material of which coins are made).

do we find a passage indicating overseas acquaintance[1] and there is a reference to Rome in the *Mahābhārata.*[2]

We have noted above that the Axumites took part in the trade between India and the West. A few years back a good number of Kuṣāṇa gold coins of Kadphises II, Kaṇiṣka, Huviṣka and Vāsudeva were discovered in the cemetery of a very old monastery in Northern Ethiopia.[3] But we have no definite clue to determine when and how these coins were brought there. In the same area medieval Arab coins were also found.[4] Scholars have tried to establish a relation between India and Ethiopia from ancient times through other archeological sources. Some sort of similarity between the animal objects represented on the panels of the monastery mentioned above and those found on the pre-historic stamp-seals of Harappa has been traced. It is suggested that the Indus Valley influence went to Ethiopia via the earlier home of the Axumites, South Arabia, which probably received the original inspiration.[5] This monastery was, however, built probably in the sixth century, long after the Arabs came to settle in Axum.[6] Some art historians assume though not on very convincing ground, certain Indian architectural influence in the great monolith at Axum, built in the beginning of the Christian era.[7] The Periplus refers to regular trade between the Axumite port Adulis (Massawa) and Ariaca, the western coast of India around the Gulf of Cambay.[8] This part of India during the Kuṣāṇa regime was under the rule of the Kṣatrapas of Saurāṣṭra and Mālwa, whose political relations with the imperial power are rather uncertain.[9] However the Kuṣāṇa gold coins might have gone outside India by way of trade through this area.

The gold coins unearthed in Ethiopia provide the only example of the Kuṣāṇa currency found in considerable quantity far outside

[1] Bk. II, 269. [2] II. 28.49; *JAOS*, LVIII (1938) pp.262-65.

[3] *Archaeologia*, XCVII (1959) p.53 (Mathews, *The monastery of Debra Damo*, Ethiopia). The exact number of coins found is not stated.

Axum was the nucleus of modern Ethiopia (Hitti, *op.cit.*), p.57.

[4] *Archaeologia, loc.cit.* [5] *Archaeologia, op.cit.*, p.34.

[6] Pankhurst, *Ethiopia, a cultural history*, pp.140 f. Mathews (*Archaeologia, op.cit.*, p.31) thinks that probably it was an Axumite temple in the beginning and was converted into a Christian church during the reign of Gebra Maskal in the sixth century.

[7] Fergusson, *History of architecture*, I, pp.142-43. [8] 4-6.

[9] Chattopadhyaya, *Early history of North India*, p.83.

the Kuṣāṇa dominions. But we should not make too much of this discovery, which merely indicates the fact that there was regular commerce between Western India and this part of East Africa in the early Chirstian period.[1] From the Periplus and Ptolemy it is evident that Indian wares were also brought to other places on the East African coast south of Axum such as, Menuthias (Zanzibar?) and Rhapta (Dar-es-Salaam?).[2] We should, however, remember that Ethiopia and other parts of East Africa have not yet been properly explored and excavated by the archaeologist. Until this is done we cannot come to any definite conclusion on the topic. But the points discussed above tend to show that India's trade relations with certain parts of the East African coast were quite close in the later part of our period. Though there were no wide settlements of Indian traders in coastal areas of East Africa in our period as there are now, India's acquaintance with this distant land seems to have started at least two thousand years ago.

The Periplus (30) refers to Indian settlements in Dioscorida (Socotra) along with those of Arabs and Greeks. This island served as the half-way halting station in the commerce between India and East Africa as Eudaemon Arabia (Aden) did in the case of the Indo-Egyptian trade. We learn from Agatharchides (Second century B.C.) that a large number of Indian traders from Patala in Sind visited Aden regularly.[3] But, in view of the volume of India's trade with Western Asian, Mediterranean or African countries, reports of Indians carrying their own merchandise abroad or settling abroad for trade purposes are very few. One of the earliest references to Indian traders abroad goes back to the sixth *century B.C. when Phoenician and Indian merchants* were seen in Babylonia.[4] We have noted above that an Indian sailor was rescued from the Red Sea by the guards of Ptolemy Philadelphos. He was the only surviving member of a group of Indian sailors who had lost their way while crossing the Arabian Sea.[5] A similar

[1] The suggestion that the Kuṣāṇa money was probably functioning in Axum as currency (*IHQ*, XXXVI (1), 1960. Mukerji, *Kuṣāṇa coins in Abyssinia*) seems to us rather too hypothetical at this stage of our knowledge.

[2] *Periplus* 12-18; *Ptolemy* I 17. 6; *CHBE*, VIII. pp.64-66.

[3] 103.

[4] Rawlinson, H. *op.cit.*, p.7. One of the earliest *Jātakas*, *Bāveru Jātaka* refers to overseas trading. Bāveru is identified with Babylonia. (Rhys Davids, *Buddhist India*, p.104).

[5] Supra, p.115.

but very dubious story is known from Pliny, who refers products, Celer (2nd. century B.C.) the consul of Gaul receiving Indian who while on a trading voyage had been driven off their cou... by storm and ultimately reached Germany.[1] These sailors seemingly had started from Alexandria where the existence of Indian settlements is proved by archaeological and literary evidence.[2] But how they arrived in Germany, in the interior part of the continent of Europe is not clear. Most probably Pliny was misinformed. Further evidence of Indian traders visiting Egypt is known from an inscription of the Ptolemaic period found near Berenice.[3] From numerous sources it is obvious that more Indian traders started coming abroad with the expansion of trade with the West which ensued from the time of Augustus and it will not be wrong to hold that soon they made themselves small rivals to the Arabs and the Mediterranean traders.[4] The Romans imposed differential dues against them and the Periplus indicates that the Arabs tried to exclude the Indians from the Red Sea.[5] In Western Asia also the Indian traders were coming in considerable numbers by now and we hear of an Indian settlement in Armenia even in the pre-Christian period.[6]

In spite of all this evidence it is obvious that India's trade with the West, whether bringing the foreign merchandise into the country or carrying Indian products abroad, was mostly done by non-Indians. They either came from consuming countries or were middlemen. Ancient Tamil literature refers to foreign trading settlements in South India.[7] No such reference to overseas settlers staying in Northern or Western India is to be found except that certain inscriptions found at Nasik, Karle and Junnar make mention of religious gifts by merchants calling themselves

[1] *Pliny*, II. 67; McCrindle, *Ancient India*, p.110.

[2] A gravestone with trident and wheel found here suggests the presence of the Buddhists (*JRAS*, 1898, p.875—Simpson, *The Buddhists praying wheel*); Dio *Chrysostom*, XXXII, 40, refers to Indians living in Alexandria.

[3] *JRAS*, 1904, p.402 (Hultsch, *Remarks on a papyrus from Oxyrhynchos*).

[4] *JRAS*, 1904. pp.402 f.

[5] Mommsen, *Provinces of the Roman Empire*, II, pp. 299 f.

[6] *Journal of the Academy of American S.S.R.*, 11 (1958); *JRAS*, 1904, pp.309 f (Kennedy, *Indians in Armenia*).

[7] *Aga*, 293; *Pura*, 191. An inscription recently discovered at Nagarjuniconda, attributed to the third or fourth century, refers to Yavana Settlement in peninsular India (*IHQ*, XXXV(2) p.147—Mukerji, *On a Nagarjuniconda inscription*).

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ying their wares to overseas markets themselves
an e profit, through avoidance of the intermediaries'.
Of cou Periplus indicates the presence of Indian sailors and agents along the coasts of Arabia and Africa,[2] but undoubtedly these were not as enterprising as their compatriots who established their hold on the markets of South-east Asia a few centuries later and maintained it for a considerable length of time. However, it does not seem that the regulation against sea-travelling which is hinted at by one of the law books of that time[3] had got anything *to do with this phenomenon. This prohibition never had any* appeal for the coastal people of India as is evident from the later history of Indian foreign trade. We should rather think that, finding regular customers at their door, the Indian traders of our period did not feel enough economic incentive to leave the shores of their country in large numbers.

We shall now discuss very briefly the articles of export and import between India and the West in the period under discussion.

*As regards the exports it is not always possible to determine* from our sources, invariably Western classical writings, how and precisely from which place some of the commodities were sent abroad. That is why the bounds of our area of study often cannot be maintained and we have to bring in data which may refer to South India. The Periplus is the only text to which we may turn for some definite information but it does not cover the whole field of the transaction. Following earlier scholars we have divided

[1] *Archaeological Survey of Western India*, IV (1883) pp.90-95, 114; *Indian Culture* I (1935) p.348.

[2] Wheeler, *op.cit.*, p 161.

[3] *Manu*, III. 158. It seems that the foreign observers noted that the mercantile coastal people of India were held in low esteem by the rest of the countrymen. (Dio Chrysostom, XXXV. 23).

the merchandise broadly under three groups; plant products, animal products and mineral products.

The fact that quite a number of spices and aromatics were known to the Mediterranean countries before our period is evident from their reference in Theophrastus's *Enquiry into plants*.[1] This text makes mention of the following useful plant products of India; cardamom (IX.7.2, 3), cassia-cinnamon (IX. 5. 1, 3; IX. 7.3), nard (do), pepper (IX.20.1), ginger-grass (IX. 7.1), citron (I. 11.4; I.13.4; IV. 4.2), rice (IV. 4. 8-10) lentil (do), cotton (do), jackfruit (IV. 4.5), banana (do), mango (do), and ebony (IV. 4.6). Sesame oil and seeds presumably from India, were also known to the West from earlier times.[2] It is not, however, very clear whether all of these products were actually coming to the West at that time or whether Theophrastus had merely learned about them from sailors, soldiers and travellers and included them in his plant directory. How were the fruits, mentioned above, brought fresh over such a long distance when the system of preservation was certainly not very good? Similar doubts arise regarding some of the plant products mentioned in Pliny's *Natural History*, which is otherwise very helpful for our purpose. In the list of Indian exports as found in the Periplus, no perishable material is mentioned. However, in this matter we do not know where to draw the line. From numerous other sources we learn that, besides the articles referred to above, many other plant products were brought to the West from India during our period. These are: sugar, indigo, lycium, bdellium, various kinds of woods, cotton products, roots of costus, gum, aloes, coconut, melon, peach, apricot, rice, millet, etc.[3]

Of these articles a few need special consideration. Pepper was in heavy and constant demand in the West from very early periods. Its use as an ingredient for preparing medicines goes back to the time of Hippocrates (fifth century B.C.), who refers to an Indian medicine called pepper used for diseases of women. He also mentions its use for eye-diseases.[4] Quite a few other plant-

[1] Theophrastus belongs to the late third century B.C.

[2] Grenfell and Hunt, *The Hibeh papyri*, 43 (261 B.C.).

[3] These articles of export are dealt with fully by Warmington (*op.cit.*, pp.180f), where the classical references will be found. From the Indian angle we can add little to his treatment of the subject.

[4] I.81; II.205.

products brought from India were used in the Mediterranean countries for preparing medicines. Tracing the uses of Indian medicinal plants in the ancient West, is an interesting subject of study, but requires special technical knowledge and is not immediately relevant to our theme.

The demand for cinnamon was also constantly high. It seems that for a long time, from the time of Herodotus to that of Pliny, the Western peoples were under the impression that cinnamon was imported from Arabia and East Africa. This error was mainly due to monopoly of the trade in this article by the Arabs and Auxmites, who managed to maintain secrecy about its origin for such a long period. This fact has induced some scholars to think that similar long standing secrecy prevailed over the Arabs' knowledge of monsoons and the Mediterranean people had to learn about them afresh from their own experience.[1]

Cotton cloth was one of the very few industrial products of early India that had an overseas market. It was manufactured, as we gather from the *Arthaśāstra*[2] and the Periplus,[3] mostly in Bengal and Gujerat and it seems that various types of textiles from rather coarse broad cloth to very fine muslin were exported. We cannot ascertain the volume of trade in this article but it does not seem that Indian muslin, in spite of its fineness, ever became a rival to Chinese silk in the Western market.

It is reported that frankincense, gum-resins and myrrh, were brought from India to the West in the early Christian period.[4] Whether India re-exported part of its own import of these articles from Arabia and East Africa[5] or was it the indigenous incense from South India, is not clear.

Though some of the plant products mentioned above were produced in South India, from the Periplus we learn that a considerable part of them was exported from the ports of Western India.

It is evident from the classical literature that the Mediterranean peoples were acquainted with certain Indian beasts and birds including the elephant, rhinoceros, lion, tiger, hound, monkey, python, parrot, peacock and fowl.[6] These were brought as presents,[7]

[1] *JAOS*, LXXVIII, p.147, n.41. [2] Bk. II. 11. [3] 48, 63.
[4] Dioscurides, I. 68. [5] Periplus, 39. [6] Warmington, *op. cit.* pp. 145 f.
[7] We have seen above (supra, p.247) that the Indian emissaries sometimes carried a few animals for presenting to the Western Courts.

baiting beasts, exhibits[1] and pets.[2] But it does not seem that animals were exported from India on an actual commercial scale except perhaps a few types of fancy birds. The Indian elephant had some demand in the West for its use in war after Alexander, but soon it was replaced by the African variety, which was cheaper and more easily available.[3] In any case the Romans made little use of elephants in war. Besides reference to them in literature, representations of Indian animals are found in the Western works of art—mosaics and jewellery—which to some extent prove the popularity of these creatures among a section of the Roman aristocracy.[4] The fact that the Indian exports mentioned in the Periplus do not include animals may suggest the absence of trade in them though the possibility of using land routes for traffic in some of them cannot be ruled out.

The traffic in animal products was varied, though its volume cannot be precisely determined. The items of export under this category consisted of ivory, wool, woollen products, hide, fur, silk, lac, pearl, oysters, onyx-shell, conch shell, tortoise shell, ghi and musk.[5] Of these articles, volume of trade in silk and ivory was undoubtedly heavy. The trade in silk was of course, largely the transit of the Chinese product through north-western and north-eastern parts of India. We shall turn to this commodity presently when we shall discuss Sino-Indian trade connection. Probably native Indian silk also found a market in the West along with the Chinese variety.[6] We have enough literary and practical evidence to prove a good demand of Indian ivory abroad. From the writings of Virgil, Horace, Ovid and many other literary figures of their time, it seems that Rome began to import ivory from India from the early

[1] In the procession of Ptolemy Philadelphos, Indian cows and dogs were shown along with other Indian products. (Rawlinson, H. *op.cit.*, p.93.); Exhibitions of Indian animals especially of tigers were often organised in Rome (Warmington, *op.cit.*, pp.148-49).

[2] Warmington, *op.cit.*, pp.152-57.

[3] At the present time, Mysore is the best hunting ground for elephants in India. Strabo (XV.1.42-3) refers to elephants from South India and Ceylon. As these heavy animals had to be taken to Western Asia and Mediterranean countries by land routes, the use of African elephants in those countries was obviously more economic.

[4] *Inventaire des Mosaiques de la Gaule et de l'Afrique*. ed. Cognat, passim; Silver dish found at Lampsacos (Warmington, *op. cit.*, p. 143).

[5] Warmington, *op.cit.*, pp.157f. [6] Supra. p. 72.

*days of the Empire.*[1] Formerly Africa was the chief source of supply.[2] The extravagant use of this luxury product for furniture and various decorations is obvious from all the above writers. Indian ivory objects of exquisite beauty have been found abroad. From Pompei, where the great disaster took place in A.D. 79 was excavated a statuette of Lakṣmī, the Indian goddess of prosperity.[3] This is carved in the style of the Mathura School of Art which throve under the Kuṣāṇas. At Begram numerous ivory plaques belonging to the same school were found.[4]

The demand in the West for Indian mineral products was quite heavy. It seems that this group of merchandise earned considerable *foreign money* for the country during our period. The Romans were exceedingly fond of gems of which the greatest bulk had to be brought from India. In the previous chapter we have discussed the probable sources of these precious and semi-precious stones within India. Of the classical authors Pliny is our most helpful informant and he is often corroborated by Strabo, Martial and the Periplus.[5] In the epics and other Indian literature we find descriptions of gems and gem-set ornaments but the specimens of jewellery unearthed are very few except from Taxila. The Junagaḍh in*scription of Rudradāman specifically refers to diamond and beryl* while describing the royal treasure.[6] The popularity of beryl among Indians is also known from Pliny, (XXXVII. 78). So far as we can gather the following stones were exported from India to the West: agate, carnelian, onyx, sard, nicolo, amethyst, rock crystal, opal, ruby, sapphire, garnet, emerald, lapis lazuli, zircon, tourmalines, jade, and turquoise.

The trade in gems was undoubtedly very profitable and in this business as pointed out by Pliny, trickery was practised with greatest benefit.[7] According to him, the Indian traders imitated beryls by staining rock crystals.[8] For exporting to the West, Indians probably *procured precious stones from other countries* also. We have stated above the export of opals. As these stones of good quality were not available in India, scholars hold that they

[1] Warmington, *op.cit.*, p. 363. n 45.
[2] Whiteley, *op. cit*, pp 482-83. From the Periplus it seems that Africa continued to supply ivory even in the Empire period.
[3] *Le Arti*, 1938-39, pp. 111-15.
[4] Supra, p. 81.
[5] McCrindle, *Ancient India*, p. 128f.
[6] *E.I.*, VIII, pp. 36-39.
[7] XXXVII. 198.
[8] XXXVII. 79.

were brought from Central Asia.[1] India's rivals in supplying gems abroad were countries in Western Asia, such as Arabia and Carmania. However, Pliny held that of all the countries that produced gems, India was the most prolific. He specifically mentions the Ganges and the Chenab where the gems were found, which proves the limitation of his informations.[2]

Of the very few Indian metals that found a market abroad, iron was the most important. Indian steel and iron had earned a reputation outside the country long before our period. From the fifth century B. C. onwards, reference to Indian iron is occasionally found in Western literature. We have mentioned them before while discussing the iron industry. According to Pliny (XXXIV. 145) iron of the best quality was sent to the West by the Seres, a term for Chinese and Tibetans in classical literature. The Seres may stand here for the Cheras of South India, some scholars think.[3] However, from other sources it is obvious that Indian iron, possibly wrought iron and steel and not iron ore, was sent to the Western countries. As the Periplus does not mention the export of iron from the Western Indian ports it has been suggested that the intermediaries maintained secrecy over the trade of this commodity, as was done in the case of cinnamon, ginger and cardamom. These Indian products for over a long period, were thought by the Mediterranean peoples, to come from countries in East Africa and West Asia. This type of secrecy sometimes caused gross mistakes in the reporting of the transactions.[4]

From Pliny (XXXVII. 66) and the Periplus (36) we learn of the export of Indian gold and copper respectively. Whether Pliny collected his informations from earlier writers or learnt from some new source is not clear. But except for political pressure, as happened under the Achaemenids, we hardly have any record of Indians sending gold out of their country. Copper that was sent from Barygaza towards the Persian Gulf area was just re-exporting of the imported copper of which we learn from the Periplus (49, 56).

Articles of import were very few compared with the Indian goods going abroad. In the Periplus we find inventories of commodities entering India through Barbaricum,Barygaza and other Western Indian ports. The excavations at Taxila also supply a

[1] Warmington, *op. cit.*, p. 246. [2] XXXVII. 201.
[3] Schoff, *op. cit.*, p. 172. [4] Warmington, *op. cit.*, pp. 256-58.

Early India had to depend upon the West for the supplies of copper, tin and lead which were used by the mints of the Śakas and Sātavahanas. Western provinces of the Roman Empire were rich in these metals.[1] Realgar, a red sulphide of arsenic and sulphide of antimony were brought from Carmania and Arabia, the former might have come from China and Burma also.[2] The medical properties of these materials are known from Dioscorides (V. 84, 105).

Chrysolithos which was probably the same as chrysolite is the only gem imported through the western ports according to the Periplus (39,49). The Isle of St. John off the west coast of the Red Sea was the probable source.[3] Jewellery works found in Taxila excavations prove that a few other varieties of stones were imported from abroad. We have discussed them in the previous chapter. Pliny (XXXVII. 36-37, 48) refers to amber as one of the favourite stones of Indians and it was probably imported in spite of its availability within the country.[4]

Though Roman coins have not been found in the vicinity of Barygaza in any considerable number, it is stated in the Periplus (49) that foreign gold and silver coins were exchanged here with the local money at a profit. The greater purity of Roman coins brought this advantage to the Western traders.[5] It seems, however, that Roman gold and silver had no perceptible influence on the economy of Northern and Western India as was the case in the south.

Traffic in human beings was carried on by almost all ancient

[1] Pliny, XXIV. 156-59; Warmington, *op. cit.*, pp. 268-69.

[2] Schoff, *op. cit.*, pp. 191-92; Watt, *Commercial Products of India*, p. 92.

[3] Whiteley, *op. cit.*, p. 428.

[4] Pliny (XXXVII. 42-46) refers to North European amber in which some Germanic tribes traded in the early Christian period. Suggestions have been made that perhaps in India amber was brought by the Goths, one of the Germanic tribes (*JRAS*, 1912, pp. 379f.). This view is based on the assumption that the Yavanas *Irila* and *Cita* who are described in two Western Indian votive inscriptions of the second century (Junnar no. 5 and 33) as *gata* were probably Goths. But we do not know how the Goths could have come to India at that time.

Irila and Ciṭa were probably Kuṣāṇas. It has been suggested that *gut-tia* may be a transcription of *Kuṣa* [*JAOS*, LXV (1945) p. 77]. Sten Konow thinks that *Kuṣ* or *Kuṣa* is probably a shortened form of Kuṣāṇas(EII,II, pt. 1, p.XLVI).

[5] See Appendix B.

civilisations. There is no means to determine the scale occupied by this item in the early commerce between India and the Mediterranean countries. From the description of the procession of Ptolemy II it is apparent that Indian girls were imported to Egypt in the third century B.C.[1] Conversely, Yavana girls were brought to India for royal customers. In his voyage towards India via the Cape in the later part of the second century B.C. Eudoxus is reported as having taken on board a few "flute-girls".[2] It is stated in the Periplus (49) that slaves skilled in music and good looking virgins for the king's harem were brought to the market-town of Barygaza. Early Indian literature corroborates these facts. In the plays of Bhāsa (first century?) and Kālidāsa (fourth century) and in the early Tamil literature yavana women occasionally featured as Amazonian groups around the king.[3]

As the West could not supply enough natural products abroad the major part of her exports consisted of manufactured goods, such as glass products, jewellery, metal objects, fancy potteries, textiles of various kinds, wines, ointments etc. Rome's trade with South India verifies this to a certain extent. Fragments of Roman lamps, sherds of Italian red-glazed Arretine ware and amphorae, glass bowl and rouletted pottery from the Mediterranean, have been discovered at Arikamedu. In Kolhapur near Bombay a bronze statue of Neptune or Poseidon and a bronze jug were found. A similar jug was discovered at Akota in Baroda. Fragments of Graeco-Roman amphorae and rouletted pottery were found in Nevasa in Ahmednagar district of Bombay.[4] All these discoveries suggest that in the early Christian era Western industrial products found a market in the Deccan and the coastal areas of Malabar and Coromandel. That the extent of this market was not very large becomes apparent both from the number of objects unearthed and from the fact that the Western traders had to send heavy amounts of gold to this part of India to cover the balance.

In Upper India the position was different. Western manufactured objects have hardly been discovered at all in this region except for a few in Taxila. The distribution of manufactured objects, such as gold and silver plates, glass vessels, crude glass

[1] Rawlinson, H *op. cit.*, p. 94. [2] Strabo, II, 99.
[3] Tarn, p. 374 Pillay, *The Tamils Eighteen Hundred Years Ago*, Ch. III.
[4] Wheeler, *Rome Beyond the Imperial Frontiers*, pp. 173-82.

which entered the country through Barbaricum and Barygaza[1] seems to have been extremely limited. We have seen above that it was trade in transit between Western countries and hither Asia that kept the routes in North-western India busy. Through this region the two-way traffic went on for a considerable period, "Shedding samples en route in market or douane but not chaffering to any great extent in these lands of passage". These samples and possibly the influx of labour from Western countries were responsible for the foreign inspiration so conspicuous among the industrial products unearthed in this part of the country. Though there was no considerable direct trade between Upper India and the West in the period under discussion, the relations established between them through transit trade, to which were added geographical and political factors, were no less significant. Apart from the fact that international traffic going through the North-western part of India brought enough riches to that region, these relations had much wider implication.

The contact between the two widely separated parts of the ancient civilised world that began with Alexander's invasion of Asia grew closer with the passage of time. Both Hellenistic Greece and Roman empire tried to preserve and expand their hold on the Mediterranean and West Asian countries so that the way to the Eastern Trade would remain open. The discovery of the south-west monsoon (Hippalus) by the Western sailors and the integration of the Mediterranean region and of the Red Sea littoral under Rome and that of the Oxus and the Indus valley under the Kuṣāṇas were the greatest contributory factors in the growth of trade between the two regions. The range of Kuṣāṇa dominions was smaller than that of China or of Rome. But holding an advantageous position between the latter countries the Kuṣāṇas derived immense economic benefit from international commerce. Their economic prosperity and particularly the cosmopolitan background against which it was attained, acted as a great helpful factor in the development of new ideas and forms in the sphere of art and religion in Northern India as are established in the eclectic sculpture of Gandhāra and to a certain extent of Mathura, both converging points of important trade routes, and in the opening of fresh horizons to Buddhism.

[1] *Periplus* 39, 49.

(*b*) *Central Asia and China*

India's connection with Central Asia and China, as far as we can gather, started later than that with West Asian countries. No doubt geographical factors were largely responsible for the longer isolation between India and these remote regions divided by unending mountain ranges and sand dunes. Some Buddhist cosmologies of the time earlier than the second century B.C. mention a few places such as Uttarakuru (Ottorogoras of the classical writers), Godāna (possibly the ancient name of Khotan), and peoples like Tukhāra (people of Tokharistan), Pārada, China, and Vokkana (people of Wakhan),[1] from which we may infer that certain areas of Central Asia and China were known to the Indians from fairly early times. But it seems that before the Graeco-Bactrians started to rule over a part of Northern India there was no regular connection between India and these trans-Himalayan countries. The trade-routes coming from North-western India and Western China met in Bactria, where possibly for the first time Indians came to know the people of Central Asia and China intimately out of the common interest of all of them in trade with the Western countries. Chang K'ien's report to the Chinese Emperor Wu-ti, submitted in the later part of the second century B.C. is the first Chinese account to inform us of the trade between India (Yen-tu) and Bactria (Ta-hia or Tokharistan).[2] India's better acquaintance with the peoples of Central Asia is evident from the epics, which refer to Śūlika (Sogdian), Kuśika (people of Kucha), Charmakhanḍika (people of Samarkand), Bāhlika (Bactrian), etc. besides those mentioned in the Buddhist Texts.[3]

The archaeological exploits of the last few decades have established that certain parts of Central Asia came under the influence of Indian culture from the early Christian period. The excavations further prove that Central Asia not only helped in the transmission of culture traits from one part of the world to the other

[1] Comp. *HI*, *II*, p. 764. [2] Hirth, p. 98.

[3] *Mahā*, II. 32. 17; *Rāmāyana*, IV. 43. 12 The identifications have been suggested by Bagchi (Comp. HI, II, p. 764). We have doubts about Samarkand. In classical writing it is known as Marcandia and it does not appear in the Chinese text before the fifth century (Berthold, Four studies on the history of Central Asia, I. p. 5).

but evolved a culture of its own through the sedentary population[1] occupying the oasis-parts of this extremely arid area. This claim is corroborated by the finds in Khoresmia[2] and the many discoveries of Stein and others in the Traim basin and the desert of Taklamakan. However, the desiccated general topography and frequently migratory movements across this area did not allow any particular oasis-culture to survive long. We shall briefly discuss India's relations with these two parts of Central Asia. They were established through trading, political and missionary activities.

Ptolemy was correct in describing the Imaus or the range of the Pamirs as dividing this part of Asia into two, Scythia within and Scythia beyond the Imaus mountains,[3] corresponding to the Russian Turkestan and Chinese Turkestan. Some parts of Russian Turkestan, or Kazakstan and Uzbekistan as they are now called, were well known from very early times. From *Herodotus we learn of Khoresmia which comes within this area* holding a leading position in Central Asia even before the time of the Achaemenids.[4] Indians and Khoresmians fought under Xerxes standing side by side against the Greeks. The recent excavations in Khoresmia, especially of the very ancient palace of the Khoresmian Shahs in the dead city of Toprak-kala, which flourished between the first century B.C. and the sixth century A.D. near the desert of Kyzyl-kum, have shown its close and long standing relations with India.

It is believed that Kharesmia came under the Kuṣāṇa empire comprising parts of North India and Central Asia during the reign of Kaṇiṣka.[5] But long before the domination of the Kuṣāṇas, the presence of Indians in Khoresmia can be detected from the remains of the craniological materials obtained in the neolithic cultural level of the fourth and third millenia B.C. in the monu-

[1] On the West of the Pamirs the sedentary population consisted of the Parthians and Bactrians along the Murghab, Khoresmians on the lower course of the Oxus and Sogdians on the Zarafshan (Polytimetos)—Berthold, *op. cit.*, p. 1, n. 2.

[2] Mongait, Archaeology in the U.S.S.R. (Penguin Books), pp. 150-51, 233f.

[3] Ptolemy, Bk. VI. Chs. 14 and 15.

[4] Herodotus, III. 117.

[5] *JBBRAS*, XXXIII (1958) p.4 (Tolstov, *The results of the Khoresmian archaeological and ethnographic expedition of the USSR Academy of Sciences, 1951-56*).

ments of Kelteminar. On similar ethnological grounds the presence of compact groups of the Indo-Dravidoid type in the Khoresmian population of the second and third centuries A.D. is suggested. Perhaps the Kuṣāṇas had a large contingent of Indians in their Central Asian army.[1] This opinion is also supported by the sculptural images of warriors found at Toprak-Kala.[2] The clay sculpture of this place was greatly influenced by the Gandhāra school of art which developed in North-western India during the time of the Kuṣāṇas.[3] It seems from some financial and administrative documents, written on leather, that the Kuṣāṇas also introduced a new system of chronology in Khoresmia probably based on the Śaka era.[4] On numismatic grounds it has been suggested that a dynasty of Indian origin ruled for some time in Khoresmia from the middle of the third century A.D., and in A.D. 305 the foundation of the dynasty of the Afrigids was laid with its help.[5] Thus it is obvious that during the first three centuries of the Christian era India's relations with Khoresmia were quite close and were established mainly through political activities. But there is hardly any positive evidence to suggest direct commercial ties between them.

The other part of Central Asia which also shows considerable cultural influence of India is bounded on the north by T'ien Shan and on the south by the K'un Lun ranges. The Nan-shan stands on the east and the Pamirs or the Ts'ong Ling marks its western border.[6] The area within this boundary is a vast desert with a chain of oases on the periphery. These oases initially acted as useful midway shelters for the traders and travellers between China and the civilised world to the West of the wide barrier but soon they themselves turned into small pockets of

[1] *Ibid.*, pp. 8-9, 17-18.

[2] Tolstov's paper in SOAS Seminar. The faces of these warriors resemble those of central and south Indians It is worth noting that the Indians in Khoresmia were mainly Dravidians (prognathic type).

[3] *JBBRAS, op. cit.*, p 2.

[4] *JBBRAS, op. cit.*, p. 4.

[5] Tolstov's paper in the SOAS Seminar. According to him the *Swastikā* symbol, as represented in the coinage of the Andhra dynasty, is also found in the post-Kuṣāṇa Khoresmian coinage. But the symbol found in the Central Asian coins under discussion has not got much similarity to the *Swastikā*

[6] Stein, *On Ancient Central Asian Tracks*, pp. 2-3, Ptolemy calls these mountains Auzacus, Casii, Thagurns and Imaus respectively. (Bk. 6, Chs. 15 an d16).

developed civilization, drawing cultural influences from China, India and the Mediterranean countries.

There were three main gateways into the permanent settled regions from this "innermost Asia". One was on the West opening towards the Black Sea and the Danube, another was on the east going to the Chinese border, and the third was the Upper Oxus Valley through which went the road to India across the Hindukush and that to Western Asia over the northern border of the Persian desert. There were also lines of communication through the oases mentioned above, which were situated along the rim of the Tarim basin, leading across the Pamirs. Though the last mentioned routes did not form a major track for migrant peoples, they were frequently used by traders and pilgrims.[1]

From North-western India the main route to the Oxus region proceeded along the Kabul Valley through Hidda (Hi-lo) and Nagarahāra (Na-kie-lo-ho), the old capital of the Jalalabad district, whence it passed through the valley of Bamiyan. Bamiyan long remained a prosperous trading mart and a great centre of Buddhism, from the beginning of the Christian era onwards. Going further north one reached the Hindukush and beyond it lay Bactria (Ta-hia) in the Oxus valley. Hence, as noted above, routes led to the heart of Central Asia, either through Sogdiana across the Jaxartes and passes of T'ien Shan to Uch Turfan and further east, or over the Pamirs towards the Tarim basin. The latter had two branches. One of them lay to the south leading from Badakshan and went up the valley of Wakhan to Sariqol (Hopanto) whence through very difficult tracks it reached the oases of Yarkand and Kashgar. This southern route was covered by Hiuen Tsiang on his way back from India and later by Marco Polo in his journey to Cathay. A short route from Kashmir joined this southern route via the Yasin and Gilgit valleys. The other route went north from Bactria towards the valley of Alai, and from there it crossed Irkeshtan and Kashgar river to reach the Tarim basin.[2] For trade the northern route was probably

[1] *Geographical Journal,* CIII (1944) p. 3 (Barger, *Some Problems of Central Asian exploration*).

[2] Beal, *Chinese accounts of India* (translation of the travel-accounts of various Chinese Buddhist pilgrims): I, pp. 11-16 (*Fa-hien's journey*), pp. 77 f. (*Hiuen Tsiang's inward journey*), IV, pp. 470 f. (*Hiuen Tsiang's outward journey*); *Geographical Journal,* IXV (1925) pp. 381-82; Bagchi, *India and China,* pp. 10-12. The Chinese names given in parenthesis were used by the Chinese pilgrims.

the more important, for through it silk could be taken to Bactria as well as via Samarkand to Merv, which was also a big centre of trade in the early Christian period.[1]

The Tarim basin became an important area from the end of the second century B.C. The increasing relations with the outside world through the silk trade brought this area more and more under the political and military control of China. But the excavations prove that for about a thousand years this basin acted "as the main channel for the interchange of cultural influences between China, India and the near East".[2]

Exploration in different places on the Tarim basin, such as Kashgar, Yarkand, Khotan, Niya, Endere, Lou-lan, Miran, Kucha, Quara Shahr and Turfan has brought to light many documents, sculptures and paintings which show that cultural influences from India were strong and of long standing in this area. Precise dating of these excavated materials has not yet been possible but scholars hold that Indians began to assert considerable influence on these regions from the later part of our period.[3] In the field of the arts the influence of the Gandhāra School can easily be traced and it is obvious from the documents that the Kharoṣṭhī and Brāhmi scripts and the Sanskrit and Prakrit languages were widely used in this area for considerable period. On the basis of this evidence and some traditions suggestions have been made that India exerted political control in this part of Central Asia.[4]

We have no concrete indications that any purely Indian dynasty ever controlled the Tarim basin. Moreover, there is evidence of cultural influences from China and Persia.[5] The instability of political conditions at home sometimes caused China to lose effective hold over this wide area. But from the second century B.C. when traffic in silk began through the Tarim basin China had always tried to maintain some sort of political control over here though its nomadic neighbours, such as the Huns often

[1] Hudson, *Europe and China*, pp. 77-78.

[2] *Geographical Journal*, IXV (1925), pp. 381-82.

[3] Documents written in Kharoṣṭhī, are assigned to the third century A.D. (Burrow, *The language of the Kharoṣṭī Documents from Chinese Turkestan*, Introduction).

[4] *Age of Imperial Unity*, pp. 638 f.

[5] Stein, *Ancient Khotan*, I. pp. VIII-IX.

tried to disrupt it.[1] It is obvious from various excavations that a considerable number of people came from North-western India and settled in this part of Central Asia in course of trade and missionary activities of the Buddhists.[2] A strong cultural background and especially the fact that they came from the land of the Buddha allowed them to hold an advantageous position in the wild area of Central Asia whose contact with the civilised world had at that time just begun. We cannot claim anything more for India at the present state of our knowledge about this area.

The Indian cultural influence in the Tarim basin was after all a by-product of Sino-Indian relations. Following the general trend that missionaries visit new lands in the wake of merchants and soldiers we should think that the commercial connection between India and China began before the introduction of Buddhism to the latter country. But the coming of the first batch of Buddhist missionaries to China is shrouded in legends and myths. To follow these legends, that auspicious time varies from the late third century B.C. to the sixties of the first century A.D., the latter date marking the visit of the monks Dharmarakṣa and Kāśyapa Mātaṅga, but none of these stories can be confirmed historically.[3] Buddhist inspiration in Chinese thought may, however, be traced from the later part of the second century B.C. in the writing of the philosopher Huai-nan-tseu. He seems to have had acquaintance with the early Buddhist cosmological ideas and with some Jātaka stories.[4] If this view is accepted, possibly the trade between the two countries started sometime earlier in that century.

The reference to *Chīnāṁśuka*, literally meaning cloth made in China, in the Arthaśāstra of Kauṭilya is possibly the sole and not at all satisfactory evidence of India's early trade with China from the Indian literature.[5] On philological grounds it has been suggested that the Chinese traders introduced into India vermillion (*Sindūra* from *ts'in tung*) and bamboo (*kicaka* from *ki'chok*),[6]

[1] Stein, *On ancient Central Asian tracks*, pp. 25-27.

[2] Vallee-*Poussin, op. cit.*, pp. 321-22.

[3] *Harvard Tarcentenery Publications*, III. p. 226 (Hu-Shi, *The Indianisation of China*); Bagchi, *India and China*, pp. 6-7.

[4] Comp. HI, II. p. 766.

[5] *II.* Ch. 11.

[6] Bagchi, *op. cit.*, pp. 58-59.

though the time of their introduction, is difficult to determine.

Our sheet anchor in this matter is still the well known account of the Chinese diplomat Chang K'ien. From his report submitted in the twenties of the second century B.C., we learn of the entry of a few articles of merchandise, such as cloth and bamboo sticks from the south-western province of Szechwan to India.[1] These are, however, not the typical Chinese articles to be sent abroad, especially to India where they were easily available. We are further told that these commodities were carried all the way through Northern India and were sold in the market of Bactria. So far it can be gathered there was no export of Chinese silk before Chang K'ien's time. Therefore it may be inferred that the cloth mentioned above, was not made of silk.

Whatever may have been the earlier situation of the Sino-Indian trade there is no doubt that through the silk trade relations became closer. From the accounts of Aristeas and Herodotus it can be inferred that China had commercial connections with the West in the sixth and fifth centuries B.C. Perhaps this trade was carried on through Scythia and Issedone (Tarim Basin) at that time.[2] There is, however, no evidence to suggest that China had much acquaintance with the Oxus Valley and Persia or vice versa before our period. Strabo's claim that the Bactrian Greeks who opted out of the Seleucid empire in 255 B.C. extended their hold as far as Seres is without any historical foundation.[3] But from this it may be inferred that the Bactrian Greeks had some relation with the people living east of the Pamir who were perhaps intermediaries in China's silk trade with the Western countries.[4] When Chang K'ien reached Bactria in the later part of the second century B.C. he did not find, so far as his own report goes, any silk product in the markets of that country.[5] It seems that, either the turmoil following the nomadic conquest of Bactria disrupted the silk trade along with other trade for

[1] *Shih chi*, 123.5b; Hirth, *China and the Roman Orient* pp. 98, 135.

[2] Minns, *Scythians and Greeks*, pp. 110-14.

[3] Strabo, XI. 516 The proper application of the term *Seres* to Chinese did not begin before the time of Julius Caesar and Augustus. Previously Siberian tribes acted as middlemen in Chinese products (Needham, *Science and Civilisation in China*, I, p. 168).

[4] Hudson, *Europe and China*, pp. 59-60.

[5] *Shi chi*, 123. 5b;

some time,[1] or China was not sending silk abroad before Chang K'ien visited the Central Asian countries. In any case the latter event gave a spur to the silk trade and brought in its sequel a growing market for China. From now onwards for quite a few centuries the trade in Chinese silk and the routes covered for this, which are usually known as silk ruotes, had a very considerable influence in the shaping of economic and political events of the whole region of the Oxus valley, North-western India and Western Asia.

The Chinese Emperor Wu-ti (140-86 B.C.) accepting the suggestion of Chang K'ien, started establishing diplomatic relations with the countries through which the silk routes passed and with the adjoining countries, such as Ferghana, Bactria and Parthia.[2] The aim was to gain both political and economic benefit, by forming alliances against China's perpetual enemy the Hiung-nu and by expanding Chinese trade. Emperor Wu-ti's attempt proved highly effective[3] and from archaeological evidence it is obvious that before the turn of the century trade relations had started between China and the Mediterranean countries.[4]

We have seen above that Chang K'ien noted the possibility of a route to Bactria via India starting from the province of Szechwan. Wu-ti tried to explore this route but the Chinese envoys could not enter India because of the severe obstacle offered by the hill people, and the attempt had to be abandoned.[5] Then it was resolved to open a north-western route and after rather an easy drive against the Hiung-nu the Chinese could make their way forward. Apart from the countries mentioned above Wu-ti tried also to establish diplomatic relations with Chi-pin.[6] This place has not yet been properly identified because

[1] Tarn; *op. cit.*, p. 363. [2] *Shih Chi*, 123. 8b; Hirth, *op. cit.*, pp. 98-99.
[3] Hudson, *op. cit.*, pp. 62-64. [4] Tarn. *op. cit.*, p. 363. [5] Hirth, *loc. cit.*
[6] *Ch'ien Han Shu* (*The History of the Former Hans*, B.C. 206 A.D. 24) 96A, 11a; Wylie, pp. 33-38. Pan-ku, the writer of this text gives a detailed description of the geographical factors, agricultural and industrial productions and various other features of Chi-pin. We find here similar descriptions of other countries where also the Emperor Wu-ti sent his envoys. Presumably these envoys collected this information. There is, however, no other source to confirm whether all the envoys reached their destinations and brought genuine information from those places. Moreover, we find a set pattern of presentation of these features. So scholars have doubts whether a few imaginary accounts have crept into this text (cf. Hudson, *op. cit.*, p. 65).

the term denoted *different places in different periods of* Chinese history, although they were contiguous regions comprising probably Afghanistan, the former North-western Frontier Province, Kashmir and the Swat Valley.[1] From the political situation of this region during the first century B.C. and first century A.D. it can be assumed that to the writer of the *History of the Former Han Dynasty* Chi-pin meant the Śaka realm in North-western India and to later writers it became the geographical expression for the realm of the Kuṣāṇas who replaced the Śakas.[2] However, the envoys of the Emperor Wu-ti were not welcome to Chi-pin. They were plundered and eventually killed. Later, the ruler of Chi-pin himself tried to re-open relations with the Hans. But some foul play was suspected and the Chinese Commander of the Passes attacked Chi-pin with the help of Yin-mo-fu, probably a Śaka prince, and killed the ruler there. Yin-mo-fu was appointed the new ruler. Though the relations between Yin-mo-fu and the Hans were not always happy, it appears from the *History of the Former Han Dynasty* that many "semi-diplomatic and semi-mercantile missions" passed between North-western India and China during the rest of the first century B.C.[3]

By this time the trans-Asian silk routes had become fairly regularised.[4] But as different parts of these routes, which stretched from the province of Kansu to the eastern border of the Roman Empire, were under different political authorities,[5] the trade carried along them was not always smooth and hardly ever

[1] Narain, *the Indo-Greeks*, pp. 135-36; Needham, *op. cit.*, p. 191.

[2] Tarn, *op. cit.*, p. 473.

[3] Yin-mo-fu has also been identified with Hermaeuns(Tarn,*op.cit.*,pp. 340-43). His date is not very certain. According to Chattopadhyaya (*Early History of North India*, p. 52). Yin-mo-fu became ruler of Chi-pin, some time after 73 B.C. when Emperor Hsuan-Ti was ruling. However, his last mission to China was sent in the fourth year of the Lo-ping era, i.e. 25 B.C. (*Tzu-chih t'ung-chien*, Ch. 30. *Zurcher's paper in the SOAS Seminar*).

[4] Warmington, *op. cit.*, pp. 22-23.

[5] These routes were divided into four parts; (1) Kansu to the Pamirs, which area was under rather loose control of the Chinese from the time Wu-ti began to expand his domain; (2) From the Pamirs to the oasis of Merv, where the Yue-chis dominated; (3) From Merv to Seleucia, the place under the control of the Arsacids and later of the Sassanids; (4) From Seleucia to the border of the Roman empire which was actually a no man's land between Parthia and Rome (Hudson, *op. cit.*, pp. 78-82).

direct, between China and Rome.[1] Intermediaries of various nationalities who participated in the silk trade throve on it for a considerable length of time.

However, several important factors emerged, as a result of which, a large part of the silk trade soon deviated from the traditional route. The Periplus (64) states that from China (Thinae) raw silk,[2] silk thread and silk stuffs were brought overland through Bactria to Barygaza and by way of the Ganges to the Coromandel coast (Limyrice). So by the middle of the first century a part of the Chinese silk supply was going to the outside world through India. The gradual development of sea routes between India and the Mediterranean countries, and the attempt to avoid the Parthians, who had been gaining the most out of the trade between China and Rome and proved themselves to be the greatest stumbling block against the direct contact between these two empires, were largely responsible for this diversion. The story of Kan ying as related in Hou-Han-Shu justifies the Parthians' concern to maintain their hold over this trade.[3]

To these factors, which we have discussed above in connection with India's trade with the West, was added a third one, namely the political consolidation of the Oxus and the Indus Valleys under the Kuṣāṇa branch of the Yue Chi people. The transit trade passing through their realm, in effect brought fortune to the Kuṣāṇas. This point has been discussed in detail elsewhere.

[1] From the Chinese side we know of the ambassador Kan Ying, who tried to establish contact with Rome in the later part of the first century (*Hou Han Shu*, Ch. 88). No other attempts at direct relations are attested.

The agents of the silk merchant Maes Titianus of Tyre tried to reach China but they failed. The information collected by them helped much in the Greek study of Central Asian Geography. (Ptolemy, I. Ch. 11, 12; VI. Ch. 16).

[2] Whiteley (*op. cit.*, pp. 569-70) likes to accept the literal meaning of the Greek *ERION* which is wool instead of raw silk. From Tibet wool has always been imported to India (Bell, C. *Tibet Past and Present*, passim) through the north-eastern passes. We are not very sure about wool being brought to Barygaza. There is no other evidence.

[3] In A.D. 97 Kan Ying was on his way to Ta Ts'in (*Roman Syria*) as an ambassador from China. When he was about to sail from T'iao-Chih (Babylonia) whence, as we know from Roman sources, there was traffic to Egypt, the sailors of the An-hsi (Parthia) terrified him with false tales of the dangers of the sea and thus put him off from his voyage. (Hirth, *China and the Roman Orient*, p. 39). Unfortunately the Chinese then did not know of a land route between Seleucia and Syria, which is known from a later source (*San-Kuo-Chih*, Ch. 30).

The diversion through North-western India made Persia lose a part of its profit from the silk traffic for some time, but from the beginning of the third century it almost regained the monopoly over that trade. Apart from silk various other commodities, such as furs, iron, cinnamon, and rhubarb went along from China to Rome which in return exported glass, textiles and a few other materials.[1]

The archaeological evidence of Sino-Indian transactions found in North-western India is very small. Chinese[2] jade and Japanese *scallop-shell*[3] *excavated there are attributed to the last centuries* B.C. However, the varied Indian influences in Central Asia which have been discussed above suggest a long standing commerce between India and China during the early Christian period. The Chinese literature of our time and of a little later period refer to some articles which suggest that Indian products went to China indirectly for quite a few centuries. The *Hou-Han-Shu* states that the presents of the Yüch-chih people to the Hans contained among other things, precious stones, a part of which might have gone from India.[4] The *Wei Shu* gives a long list of articles brought to China by the Persians. This list contains, coral, amber, carnelians, pearls, transparent and opaque glass, rock crystals, diamonds, steel, cinnabar, quick silver, frankincense, turmeric, storax, putchuk, damask, brocaded muslins, black pepper, long pepper, dates, aconite, gall nuts and galangal.[5] The *Sui-Shu* presents the same list of products added with gold, silver, tush, lead, sandalwood, various tissues, sugar and indigo.[6] Obviously, most of these articles came from India, and the rest from South East Asia and Arabia though the Chinese knew *them as Persian products.*[7] *This fact shows that China's direct* contact with India and other Asian countries was slight even as late as the seventh century and the Chinese had a hazy idea about the outside world[8] till then. From the history of the trade of the later period we may assume that through Persia at least

[1] Hudson, *op. cit.*, pp. 91-97.
[2] *ASR*, 1919-20, Pt. 1. p. 19.
[3] *ASR*, 1926-27. p. 118, No. 14.
[4] 77. 7a. *History of the Later Hans* (A.D. 25-220).
[5] 102, *History of the Northern and Eastern Wei dynasties* (385-556).
[6] 83, *History of the Sui dynasty* (581-617).
[7] Hirth and Rockhill, *Chau-ju-kua* (Trsn.) p. 16, n. 1.
[8] *Ibid.* pp. 7-8.

a small part of the merchandise mentioned above was exported from India to China in the early Christian time. It seems that as the Arabs and the Axumites were beneficiaries in the trade between India and the Mediterranean countries, so later the Persians enriched themselves by carrying Indian commodities to China.

The Periplus (64) refers to the import of Chinese silk to the east coast of India by way of the Ganges. We have also noted above that Chang K'ien reported the entry of a few Chinese products into India from the province of Szechwan and that later the Emperor Wu-ti made an unsuccessful attempt to send envoys to Bactria through North-eastern India.[1] From Ptolemy we learn of the existence of a road from China to India going through Palimbothra (Pātaliputra).[2] These references suggest that there were routes between China and India, (1) via Yunnan, Burma and Assam, and (2) via Tibet and Sikkim. The latter route still exists and up to very recent times there was a regular trade along it. Afterwards Buddhist pilgrims used this road for going to Tibet from Magadha.[3] Chinese silk brought to Pātaliputra could be taken down the Ganges to Tāmralipti and other parts on the Bay of Bengal known to the Mediterranean sailors.[4]

An itinerary of the Assam-Burma-Yunnan route is not distinctly found before the later part of the eighth century. On the basis of Chank K'ien's report and the subsequent attempt by the Emperor Wu-ti to contact North-eastern India through the province of Sczechwan,[5] Pelliot believes that from the second century B.C. the above mentioned route was used for communication between Eastern India and China.[6] He thinks that the jugglers and musicians from Ta-ch'in who are reported in the *Ch'ien Han Shu* to have gone to China in A.D. 120 passed through this route.[7] In fact a passage in the third century text *Wie-lio* mentions a route from Ta-ch'in (Roman Syria) to China through Yunnan.[8]

[1] *Supra.* p.159. [2] I. 17. [3] *History of Bengal*, I, p. 663.

[4] Periplus, 47; Ptolemy, I, 13, VII. I; Strabo (XV. 689) probably learning from Megasthenes refers to the Gangetic trade.

[5] *Supra.* p.159.

[6] *BEFEO.* IV (1904) pp. 142-43.

[7] According to Coedes [*JSS.* XXI. pt. 3 (1928) p.207] the Roman comedians passed through Lower Burma and southern part of Siam to catch a boat from the Gulf of Siam.

[8] Hirth, *op. cit.*, pp. 74-75.

But it does not seem from this text that the Romans used the North-eastern Indian passage to reach Yunnan. The lack of sufficient evidence has made some scholars doubt the use of the Assam-Burma-Yunnan route in such ancient time.[1] They propose an earlier contact through Tibet from Sczechwan, which does not seem very satisfactory.

From Chia Tan's compilation (A.D. 785-805) an itinerary from Yunnan to North-eastern India through Upper Burma is found. According to this text, coming from Sczechwan this road bifurcates at Chu-ko-liang. Hence, one branch runs south-westerly through the kingdom of P'iao or Pyu and crossing the Black mountains reaches Chia-mo-po, covering 3500 li in all. The other goes direct to west for 2000 li and reaches Ko-mo-lu via Ta-Ch' in-p'o-lo-men (Manipur). From Chia-mo-po or Ko-mo-lu, both of which have been identified with Kāmrūpa (Gauhati) by Pelliot[2] the route runs towards Magadha. However, this itinerary does not help us much in finding out the actual direction of the Assam-Burma-Yunnan route in our period, if it was in use at all by that time.

Up till recent times a caravan traffic was in operation from Ch'un King, the Chinese city on the Upper Yangtze to Bhamo on the Irrawady in Burma through Yunnan. Bales of silk were loaded on mules at Sui Fu above Ch'un King and brought to Chao T'ung in North Yunnan whence the merchandise was carried down to Bhamo through K'un Ming, Hsia Kuan and Teng Yueh. From Bhamo it was shipped for the Indian market. This pack route covered over 600 miles. During the last Sino-Japanese war a motorway was built along this hazardous route.[3] We can safely assume that the use of this caravan route began in fairly early times though we do not know exactly when.

### (c) *South China and South East Asia*

The Han Emperor Wu-ti, who as we have seen above followed an expansionist policy towards Central Asia and the countries

[1] *JGIS*, XV (1956) pp. 1f (Liebenthal, *The Ancient Burma Road—a Legend?*).

[2] *BEFEO, op. cit.*, pp 169-81 Christie [*BSOAS*, XX (1957) pp. 159 f] thinks that Chia-mo-po is an unidentified place south of Kāmrūp. According to him, on the evidence of Hiuen Tsiang Ta-Ch'in-p'o-lo-men is synonymous with the Kāmrūpa Kingdom.

[3] *Geographical Journal*, XCV (1940) p. 170. (Fitzgerald, P. *The Yunnan-Burma Road*)

to the West of it, maintained the same policy towards the southern region also. By 111 B.C. Canton or P'an-yü, the capital of the Nan yüeh kingdom was annexed and it seems that Chinese sailors started frequenting the Gulf of Tongking soon afterwards.[1] It was mainly the demand for metals and luxury products that brought the Hans to South China but there is no evidence to help us decide how far down the South China Sea they ventured for trade.[2] However, there is a passage in the *Ch'ien Han Shu* which suggests that maritime trade between India and China began some time early in the first century B.C. In this passage an itinerary related to Wu-ti's time describes a voyage from the barriers of Je-nan, Siu-wen and Ho-p'u to Huang-chih via Tu-yuan, I-lu-mu, Shen-li and Fu-kan-tu-lu.[3] It took about a year to cover this route. Part of it, from Shen-li to Fu-kan-tu-lu was by land, which possibly relates to the Isthmus of Kra. Alexander, one of the earliest Mediterranean sailors in the seas beyond the Malay Peninsula seems also to have crossed this isthmus instead of going through the Strait of Malacca on his way to Cattigara Sina, some time before the middle of the second century A.D.[4] There is controversy over the identification of most of the places mentioned in the Chinese text but it is generally assumed that the suggested voyage was from Tongking to India.[5] The terminal point Huang Chih has been identified with Kāñcī (Conjeeverum) in South India.[6] It has been claimed on numismatic grounds also that there was a maritime trade between South India and China in early times. But the dating of the Chinese coin found in Chitaldrug near Mysore on which this view is based is not at all certain.[7] Following the old system of Chinese pronunciations Bagchi has suggested that Huang-che should stand for Gaṅgā.[8] In

[1] *Shih Chih*, 113. 4a-6b; *Ch'ien Han Shu*, 95. 10b—13a.

[2] *JMBRAS*, XXXI pt. 2 (1958) p. 15. Wang Gungwu, *The Nanhai Trade*).

[3] *Ch'ien Han Shu*, 28B, 32 a-b.

[4] Ptolemy, I. ch. 16; VII. ch. 3; Thomson, *History of Ancient Geography*, pp. 314-15.

[5] T'oung-Pao, XIII (1912) p. 460 (Pelliot, *Review of Hirth and Rockhill's translation of Cha-ju-kua*).

[6] *JA*, 1919, pp. 45-46 (Ferrand, *Le K'ouen-Louen*).

[7] *IHQ*, XIV (1938) pp. 386-87 (Nilkanta Sastri, *The beginning of intercourse between India and China*); *Mysore Archaeological Reports*, 1910, pp. 44. Mr. Lowe of the School of Oriental and African Studies, University of London, thinks that the coin belongs to the eighth century.

[8] Comp. *H.I.* II, p.772.

that case it seems that there was maritime trade between the Gangetic Velley and China before 87 B.C. when Wu-ti's reign expired. From the same passage in the *Ch'ien Han Shu* we learn that the Chinese received lustrous pearls, rare stones, glass and a few other strange products in exchange for gold and silk. However, the sources of supply of the Indian articles received by the Chinese does not seem to have been the eastern part of the country. The best pearls near about India are found in the Gulf of Manaar and in the Persian Gulf.[1] And glass which was most probably of Roman manufacture was re-exported either from an entrepôt such as Arikamedu or from western and north-western regions. But we have noted above that Roman glass products did not reach India before the first century A.D.[2] It seems that Pan-ku, the author of the *Ch'ien Han Shu*, has confused the Sino-Indian trade of different periods. Actually in the same passage of this text there is another itinerary of a voyage from Hung-chih to Siang-lin, the southern port of Tonking and this is related to the time of the Emperor P'ing (A.D. 1-5).[3] It seems from the itinerary in the reverse direction that the journey was throughout by sea. The Emperor's counsellor Wang Mong sent rich gifts to the King of Huang-chih demanding tributes in the form of live rhinoceros.[4] If official relations were established by the beginning of the first century A.D., possibly the maritime trade between India and China existed much earlier.[5]

After a considerable gap we again find reference to maritime connections between China and India in the *History of the Later Han Dynasty*. It refers to two missions which went to China by sea from T'ien Chu, one in 159 and another in 169.[6] By T'ien chu the Chinese usually meant India,[7] particularly its upper part. It is obvious that to the Chinese T'ien Chu and the region of which Huang Chih was the port, were different countries. The people of Huang Chih are described as barbarians in the *Ch'ien Han Shu*. It seems most probable that it was the Kuṣāṇa Empire

[1] Watt, *Commercial Products of India*, pp. 557-58.

[2] *Supra* pp 78 f.

[3] *Ch'ien Han Shu*, 28b. 32b; *T'oung Pao. op. cit.*, pp. 457-59.

[4] We have followed Wheatley's translation of the passage in question. Cf. *The Golden Khersonese*, pp 8f.

[5] *JMBRAS*, *op. cit.*, p. 20.

[6] *Hou Han Shu*, 118. 10a, 8b—9a.

[7] Hirth, *op. cit*, p. 42.

which tried to establish contact with the Hans. Neither the route followed by the Indian envoys nor the presents or commodities carried by them are mentioned.

With the decline of the Later Han Dynasty and the temporary loss of overland trade routes for some time China's maritime contact with India and the Western world grew. There is evidence of the merchants of Ta-ch'in (Roman Syria) visiting Canton in A.D. 226[1] About travellers from India we do not find any such direct reference. But from India's relations with South East Asian countries in that time, which we shall discuss presently, and from the nature of the goods in demand in China, such as corals and pearls and from a reference in the *Milindapañha* we may infer that maritime trade was carried on with China.[2] It is likely that part of this trade was conducted from Upper India as it happened in case of trade, between India and South East Asia.

In the context of India's connection with South China it can be assumed that the places in South East Asia which are located on the maritime highway between these two countries also received attention from the traders, though when is still a matter of conjecture. It is held that an ethnological affinity existed between the people of South East Asian countries and those of pre-Aryan India, but this cannot be properly explained. One theory maintains that an ethnic wave originating in South East Asia flowed into pre-Aryan India; another view postulates that there was an eastward migration from India on the arrival there of the Dravidians or the Aryans; and a third hypothesis is that the original home of the pre-Aryan Indians and Indonesians was somewhere in Western China from which both these people migrated.[3]

Even in the historical period our knowledge of the trade and other connections between India and South East Asia remains vague, especially before the days of the Guptas. Mainly on the basis of the literature of China, India and the West it can be assumed that contact between these two regions had begun in the early Christian period, but its precise nature and scope have not yet been determined.

[1] Hirth, *op. cit.*, pp. 47-48; *Liang Shu*, 54. 9b-10a.

[2] *JMBRAS*, *op. cit.*, p. 29; *Milinda*, p. 359. The *Milinda* is possibly the only Indian text of our time where a sea voyage to China is mentioned.

[3] Hall, *History of South East Asia*, p. 9.

Apart from providing important halting centres in the trade between India and South China, the countries of South East Asia were rich in mineral and agricultural products and this is true even now. For its natural wealth this region came to be called "The Land of Gold" almost universally in ancient times. The *Suvarṇabhumi* or *Suvarṇadvīpa* of Indian literature perhaps roughly comprised Lower Burma, the Malay Peninsula, and the Indonesian Archipelago.[1] The folk tales of the Jātakas describing voyages from the Indian ports like Broach, Sopara, and Tamluk to *Suvarṇabhūmi* suggest an established trade between India and South East Asia,[2] but because of their uncertain time of composition these tales are not very helpful for our purpose. The *Arthaśāstra* (II. ch.2) records the importing of *aguru* (aloes-wood) from *Suvarṇabhūmi*. The *Milindapañha* and the *Mahânid-desa*, attributed to the first or second century A.D. show closer acquaintance with some parts of South East Asia.[3] The later literature based on Guṇādhya's *Bṛhatkathā*, a lost text which was possibly written in the early Christian period also relates trading ventures to *Suvarṇabhūmi*.[4] Attempts have been made to distinguish between *Suvarṇabhūmi* and *Suvarṇadvīpa*, meaning "Land of Gold" and "Island or Peninsula of Gold" respectively, but it does not seem that the ancient authors were very conscious of the geography of the places described in these glowing terms.[5]

The acquaintance of the Mediterranean peoples with the countries of South East Asia is known from several classical writers of the early Christian era. The islands called *Chryse* (where the soil is of gold) and *Argyre* (where the soil is of silver) feature occasionally in the classical description of this region. Some of the writers were, however, patently ignorant about the proper location of these places, Pomponius Mela (III. 70), probably the earliest of the Latin geographers to refer to this region, locates *Chryse* and *Argyre* off the Cape Tamus[6] and

[1] Majumdar, *Suvarandvīpa*, *i*, pp. 46-48.

[2] III. p. 124, IV. p 86, VI p 22

[3] *Milinda*, p. 359; *Etudes Asiatiques* II (1925) pp. 52-53, (Lévi, *Ptolemée, La Niddesa et la Brhatkatha*).

[4] For full reference See Majumdar, *op.cit.*, p 38, n. 1-6.

[5] Gerini, *Researches on Ptolemy's Geography of Eastern Asia*, p. 78; Majumdar, *op.cit.*, pp. 44 f.

[6] Tamus is a promontory formed by an extension of the Taurus or mountains (Whiteley, *op.cit.*, pp. 127-28).

the mouth of the Ganges respectively, and according to Pliny (VI.80) they are off the mouth of the Indus.[1] Pliny often confused the materials that he received from different sources. But from him we may gather by inference fairly reliable information. He also refers to a *Chryse* promontory, presumably the Malay Peninsula, and to the rich minerals of *Chryse* and *Argyre*. These minerals are, according to Pliny (VI.82), other than gold and silver. Malaya is still rich in tin and iron.[2] Gold mines still exist and some of them seem to have been worked in ancient times.[3] As the eastward limit of the experience of the author of the Periplus was the Malabar coast, he (64) just refers to *Chryse* situated somewhere in the eastermost part of the inhabited world, beneath the rising sun. Of all our sources regarding South East Asia Ptolemy is the most informative. He describes the river system and emporia of the *Golden Khersonese.*[4] Mainly on the basis of the river system described the Golden Khersonese was formerly identified with Lower Burma, but scholars now prefer to identify it with the Malaya Peninsula, on the following grounds:

1. *Golden Khersonese* is specifically mentioned as a peninsula and this is supported by the similarity of the map based on the Ptolemaic data of trans-Gangetic India with the outline of the mainland of South East Asia,
2. The actual richness in gold of Malaya. Up to the eighteenth century Malaya was well known for its gold.[5]

Ptolemy's account of South East Asia suggests that by the second century direct connection between this region and the Mediterranean countries was established. We know from the Hou Han Shu that a mission from Ta-ch'in came to China by sea in A.D. 166.[6] From this fact we may infer that there was some

[1] Thomson, *History of Ancient Geography*, p. 313.

[2] Burkill, *Dictionary of the Economic Products of the Malay Peninsula*, pp.483, 1123.

[3] *Ibid.*, p.1095. The gold production of present-day Malaya is insignificant compared with that of Australia, South Africa and North America. But in ancient days gold was a much rarer commodity.

[4] I. ch. 7, VII. ch. 2.

[5] *Transactions and papers, Institute of British Geographers*, No. 21 (1955) pp. 64-65. (Wheatley, *The Golden Chersonese*).

[6] 118, 10a, 8b-9a.

Roman contact with the South East Asian countries. However, as we pointed out in the introductory chapter, a recent theory suggests that the existing work of Ptolemy was probably compiled in a far later period.[1] In that case to form any opinion about the subject using only Ptolemy becomes risky. But corroborative evidence suggests that it was possible for an inquisitive Western scholar of the second century to collect reliable information about South East Asia, through indirect sources. The natural affluence of South East Asia is testified to by the Chinese sources also. In some early texts we meet the term *Chin-Lin* or the frontier of gold which lay beyond Fu-nan, though it has not been satisfactorily identified.[2]

We now review the evidence of India's trade relations with different countries of South East Asia in our period.

*Burma*

We have noted above the existence of a trade route connecting North-eastern India and Yunnan province of China through Burma.[3] According to some scholars this route was in use from the last centuries B.C. We do not know whether there was any trade between India and Burma by that time. Until the fifth century A.D. India's connection with Burma is shrouded in legend. According to the Burmese chronicle a Śākya prince of Kapilāvastu founded a kingdom in Upper Burma in prehistoric times and ruled for generations. Another group of kṣatriyas came during the time of the Buddha, and later moved southwards and founded their capital in Śrī-kṣetra now called Hmwaza, near Prome.[4] The earliest epigraphic record of Indo-Burmese relations has also been discovered in this place.[5] Paleographically, these Buddhist records are attributed to the fifth and sixth century.[6] According to the legends, Indian influence came to Lower Burma by sea.[7] From these sources we can only surmise the existence

[1] *Supra*, p 8.

[2] Wheatley, *op cit.*, pp. 116-17

[3] *Supra*. pp. 164f.

[4] *Age of Imperial Unity*, p. 655.

[5] Report of the Superintendent of Archaeological Survey of Burma, 1919. pp 18f.

[6] Ray N., *Sanskrit Buddhism in Burma*, p 4.

[7] Hall *op.cit*, p. 119.

of some kind of early trade relations between India and Burma, both by land and sea.

*Malaya*

The *Vāyu Purāṇa* which in its present recension is placed in the Gupta period,[1] refers to *Malayadvīpa* as a constituent part of *Jambudvīpa.* According to this text there are mountains and rivers in *Malayadvīpa* and the *mlecchas* live there. It is described as a rich land having gold and silver mines, precious stones and sandalwood. The Puraṇic account fits in with Malaya as well as with certain islands of Indonesia. Some scholars prefer to identify Malayadvīpa with Sumatra, relying on Chinese evidence.[2] We have noted above that Ptolemy's *Golden Khersonese* broadly corresponds with Malaya.

Perhaps the traders were using the Isthmus of Kra in Malaya as the shortest passage between the Indian ocean and Indo-Chinese mainland and the South China Sea. This can be inferred from the sailing itinerary between Tongking and Huang-chih, as found in the *Ch'ein Han Shu.*[3] From a later text, the *Liang Shu* we know that trade was carried on between India and Tun Sun. Tun-Sun was 3000 li from the southern frontier of Fu-nan of which it was a vassal state. Tun Sun has been identified with the isthmian part of Malaya.[4] Possibly it was an important entrepôt in the northern part of the peninsula. From Indian and Western literature it seems Takkola was another notable port and this has been located near Trang on Ptolemaic evidence.[5] Archaeological evidence of Indian influence in Malaya cannot be traced before the fourth century.[6]

[1] 13-25.

[2] Braddel points out that Mo-lo-yu, which is the Chinese transcription of Malaya, was the name of a kingdom and a port on the east coast of Sumatra during the seventh century A.D. [*MJTG*, IX (1956) p. 6].

[3] *Supra.* pp. 165f

[4] *Liang Shu* 54. 7a; Wheatley, *op.cit.*, pp. 15 f.

[5] Wheatley, *op.cit.*, p. 272.

[6] *JMBRAS*, XVIII. pt.1 (1940) pp. 1f (Quaritch Wales, *Archaeological Researches on Ancient Indian Colonization in Malaya.*).

*Indonesia*

Legends about early contact between India and the Indonesian Archipelago are not lacking. Of these the one relating to the King Aji Śaka and his associates who established themselves in Java is widely known.[1] The *Rāmāyaṇa* refers to a *Yavadvīpa* which literally means "Island of Barley". The same meaning is applied by Ptolemy himself to his *Iabadios* (VII, ch.2). The Hou-han-shu also refers to a *yeh-tiao* which was anciently pronounced as *yap-div.*[2] All these places are usually identified with Java.[3] We do not know whether barley was grown there in our time. According to a modern geographer, barley will grow on the mountains of Java, but its cultivation has not been taken up.[4] Some scholars prefer to identify *Yavadvīpa* with Sumatra,[5] others with Borneo.[6] The earliest inscription attesting Indian connections has been discovered in East Borneo. On grounds of palaeography this has been assigned to the fourth century.[7]

From the account of K'ang T'ai, the Chinese envoy in Fu-nan in the earlier part of the third century we learn that the yüeh-chi merchants regularly supplied horses to the king of Ko-ying.[8] The commercial importance of Ko-ying or Chia-ying is also evident from other Chinese texts of the third century.[9] According to Pelliot Ko-ying was in the southern part of Malaya.[10] In a recent study, Wolter argues that Ko-ying may be located in South-eastern Sumatra.[11] He further suggests that these horses were

[1] Majumdar, *op.cit*, pp 94-96.

[2] Wheatley, *op cit.*, p 177.

[3] *BEFEO*, IV (1904) pp. 265-66, Coedes, *Les Etates hindouisés d'Indochine et d'Indonésie*, pp. 92-93.

[4] Burkill, *Dictionary of the Economic Products of the Malay Peninsula*, I, p. 1194.

[5] *JA* 1922, pp. 202-206 (Ferrand, *L'empire Sumatra—nais de Crīvijaya*); Krom, *op.cit*, p. 55; Gerini, *op cit.*, pp. 547-48.

[6] *JMBRAS*, XIX. pt 1 (1941) pp. 31 f.

[7] Chatterji, *India and Java*, p. 1.

[8] T'ai p'ing yu Lan, 359, 1650; *EA*, II, (1925) p 250. K'ang T'ai's works remain only in quotations found in several Chinese texts of later period.

[9] Ko-ying is also mentioned by Wan Chen, the prefect of the Wu dynasty at Tang yang, near Nan King. T'ai p'ing yü Lan, 790, 3501.

[10] *EA*, II, (1925) p 250.

[11] Wolters, *A Glimpse of Western Indonesia in the third century* A D. (Majumdar Volume).

possibly exported from a port called by the Chinese as Ku-nu, which according to its description may be somewhere in India.[1] We shall see below that the yüeh-chih horses were also supplied to Fu-nan from India in the third century.

The *Rāmāyaṇa* refers to sandalwood coming from the *Ṛṣabha* mountain which has been located in Timor or Celebes in Eastern Indonesia.[2] One of India's major supplies to the West in our period consisted of spices. There is no positive evidence to prove that part of this merchandise was collected from Indonesia. But this Archipelago was and is famous as a spice growing area. Kālidāsa, usually attributed to the fifth century, refers to *lavaṅga* (clove) from *Dvīpāntara*,[3] which is identified with Sumatra.[4] The medical use of clove, which was not a native product,[5] is attested by the *Caraka Saṁhitā*, a text of the first or second century A.D.[6] This suggests import of clove from Indonesia by the first century. The reputation of Indonesia as a pepper producing area is evident from several Chinese texts, the earliest of which was written in the beginning of the fifth century.[7]

### *Fu-nan and Campā*

The earliest evidence of Indian influence in South East Asia has been found in the Lower Mekong Valley. Fu-nan and Campā, roughly comprising Cambodia, and South Vietnam, preserve very old Indian tradition in their legends. From a third century account of the Chinese envoys in Fu-nan we learn of a local tradition, according to which a *Brāhmaṇ* called Hun-T'ien (Kauṇḍinya) of Mo-fu (Malaya) reached Fu-nan by chance in a trading vessel. Hun-T'ien won over this country and its female ruler Lin-yeh without much difficulty. This possibly happened some time in the first century A.D.[8] From the same text we learn that a diplomatic exchange took place between Fu-nan and the *Men-*

[1] *Ibid.*

[2] Levi, *Pour L'histoire du Rāmāyaṇa*, pp. 110-11.

[3] *Raghuvaṁśam*, VI. 57.

[4] Ramchandra Dikshitar, *Some Aspects of the Vāyu Purāna*, p. 50.

[5] Watt, *Commercial products of India*, p. 527.

[6] *LVI*, 1759.

[7] Wolters, *Early Indonesian Commerce and the Origins of Srī vijaya* (London University Ph.D. thesis 1962).

[8] *BEFEO*, III (1903), pp. 248 f.

*luen* (Maruṇḍa) ruler of Northern India who was possibly of the later Kuṣāṇa line, during the earlier half of the third century. The Indian rulers sent four yüeh-chih horses as presents to Fan Chen, the ruler of Fu-nan. There is no report of any direct Indian trade with Fu-nan which however received merchandise from Ta'chin.[1]

From excavations at the maritime town of OC-EO we know more of the early commercial connections between Fu-nan and many countries far and near to it. It seems that OC-EO was an important centre of trade and industry from the early period of the Christian era. Large numbers of semi precious stones such as pearls, rock crystals, onyx, cornaline, amethyst etc. which were exported to the West from India in our period have been found here. Jewellery unearthed here shows either Indian or Roman inspiration. OC-EO's close relations with India get confirmed by epigraphic evidence. The types of script in the inscriptions found on some pieces of jewellery were used in India between the second and the fifth century A.D. Several ancient seals bear script comparable with that of the Nasik inscriptions of Usavadāta and of Vāsiṣṭhīputra Pulamāvi, both belonging to the first half of the second century A.D. Other inscriptions recall the Girnar inscription of Rudradāman (A.D. 150) and the script used in the Kalpanāmaṇḍitikā, the Jain scripture of about A.D. 300 found in Central Asia. Two Buddhist bronze images in the style of Gandhāra and a copper image in the style of Amaravati have also been found. The other group of objects unearthed in OC-EO bear Roman, Iranian and Chinese craftmanship of the early Christian period. It seems that the mines of Malaya and Indonesia supplied gold, tin, iron and copper to OC-EO for its industries.[2]

In this connection we like to refer to the discovery of a Buddha image in the style of Amaravati and of a Roman lamp, similar to a find in Pompeii, in P'ong Tuk in Siam.[3]

The local adaptation of the events of the *Rāmāyaṇa* is found in the early legends of Campā which is now a part of the Viet Nam State. The famous inscription of Vo-canh refers to a dynasty

[1] *loc. cit*

[2] Artibus Asiae. X (1957) pp. 193 f. (Coedès, *Fouilles en Cochin-Chine*).

[3] *JSS*, XXI (1928) pp ' f (Coedès, *The excavation at P'ong Tuk and their importance for the history of Siam*).

founded by King Sri-Māra. He was a Buddhist and Sanskrit was his court language. The dating of this inscription is still a matter of controversy and this varies from the early third to the fourth century A.D.[1]

In the above analysis we find but a meagre information regarding India's trade with South East Asian countries in our period. But from various indications we can visualise that some kind of communication had begun between these two regions and this became more brisk from the fifth century onwards. The significant question in connection with the trade relation between India and South East Asia in our period is—what made India turn towards that region? In the commerce between India and the Mediterranean countries the initiative usually came either from the recipient countries or from the Arabs and Axumites who acted as middlemen.[2] But in the case of trade with South East Asia it seems that mostly the Indians themselves were the active agents. The theory that contact was developed by people of South East Asia coming to the Indian coast and trading there has not been properly substantiated.[3] The *Jātakas* refer to a trader from the *Suvarṇabhūmi* coming to Bhārukaccha, but as has been pointed out by Wolters it is possibly the case of an Indian trader returning home.[4]

There are different views as regards the reasons behind the Indian trading ventures to the countries of South East Asia. It has been suggested that during the last centuries B.C. India could not procure gold from Siberia because of political troubles in Central Asia. Afterwards the situation became worse when the Emperor Vespasian totally stopped gold going abroad. Being unable to get gold from the North and the West India turned towards *Suvarṇabhūmi*.[5] We do not accept this view fully. India's gold situation in the pre-Christian time is not known. But we believe that in the first and second centuries A.D.

[1] *IHQ*, XVI (1940) pp. 484-86. (Coedès, *The Date of the Sanskrit Inscription of Vo-canh*); *JA*, 1953, pp. 477-85 (Gaspardone, *Le Plus Ancience Inscription d'Indochine*).

[2] *Supra*, pp. 141-42

[3] Hornell, *The origins and ethnological significance of the Indian boat designs*, p. XVII; Krom, *op.cit.*, p. 7.

[4] Wolters, *op.cit.*

[5] Coedès, Les Etates, pp. 41f.

the Kuṣāṇas imported gold from the Altai and the Ural regions.[1] The stoppage of Roman gold, which is also a doubtful question, could have forced the South Indians to turn to South East Asia. But we have seen above that the Kuṣāṇas and other people of Upper India were participants equally with the southerners in India's trade across the Bay of Bengal. Roman gold probably never came to Upper India in any large amount.[2]

The development of Buddhism, which broke the rigid restraint against going abroad, has also been held to be a factor encouraging Indians to go abroad. It does not seem that this restraint ever had any practical effect on the coastal people and in the period under discussion only affected the *Brāhmans*.[3]

The main reason for Indians going towards South East Asia seems to be that the growing demand by the West for Eastern luxuries could not be met from India alone. The profitable trade with the West probably encouraged the Indians to look for a region like South East Asia, rich in minerals, spices and aromatics. If these commodities were brought to India part of them was possibly consumed at home also. Though we believe that Upper India itself did not have much direct trade with the West, that would not have deterred the people of that region from taking part in Indo-South East Asian trade.

[1] *Infra* p.180

[2] *Supra*, pp. 134 f.

[3] *Art and Letters*, XXIII, pt. 2 (1949) pp. 62-63 (Basham, *Notes on Seafaring in Ancient India*).

# CONCLUSION

HISTORICAL investigation is a study in logical possibilities. To the student of ancient history the range of possible solutions to any given historical problem is generally limited because his raw materials, the basic facts, are often missing. As this is very true in the case of early India, our study has been somewhat patchy and occasionally devoid of links. Many questions that we have had to ask ourselves for the proper understanding of the situations have remained obscure and unanswered. We think it is better to admit our ignorance and let the gaps remain if we do not want to make history "a monument of uncontrolled ingenuity".

As this dissertation is limited to the study of the productive factors of a few centuries of early Indian economy and as its distributive aspects have been touched very casually, we are not in the right position to make a critical assessment of the general economic condition of the country at that time. From the information noted in the foregoing chapters we shall try to infer a few broad hints.

It seems that India was passing through a phase of economic growth in our period though the situation differed in different parts of the country. The actual encouragement of bringing more land under cultivation may be inferred from numerous contemporary land grants of Western India. The export of spices and various other food products may also have given some impetus to their increased cultivation. Agriculture was no doubt the main occupation of the people, but possibly the agriculturists were not getting adequate returns because of the increasing intermediate interest over land.[1]

The rapid growth of urban life which usually comes with the development of trade and industry, is the most important characteristic of the socio-economic life of the India of our period. Urban culture emerged in India long before our period, but it had never before existed on such a large scale. Our direct knowledge about industrial activities is limited to the north-western part of the country where various objects have been unearthed

[1] *Supra*, pp. 43-44.

in considerable quantity. From literary references it is obvious that textile and iron manufacture had achieved a high standard and a good market abroad. But we believe that the potentialities of developing industries much further were not fully exploited.[1]

It was trade, particularly with foreign countries that brought into being many cities and market-towns along the inter-state trade routes and near the ports on both the East and the West coasts. We have discussed above foreign trade in detail. Though there are no reliable data to determine the volume of the trade with different countries and the profit gained out of it, yet it can be safely assumed that considerable wealth from abroad entered the country. But we have no answer to the crucial question how far it affected the common man. We may only hope that in a developed economy the common man also shared a little part of its fruits.

Thus, though politically the greater part of Northern and Western India had disintegrated in our period, on the economic front the picture was far from dismal. India's flourishing condition is stated in very glowing terms by two classical historians of our period. Dio Chrysostom virtually found his El Dorado there,[2] and according to Pliny India was the second richest country, Rome being the first.[3] There is no way of determining the factual basis of these vague and generalised statements, and we need not attach much importance to them. But if the Golden Age of the Guptas actually enjoyed as rich an economy as it is assumed,[4] we believe that its groundwork was laid in the period that immediately preceded it.

[1] *Supra*, pp. 93-94.
[2] *Bk*. XXXV.
[3] *Bk*. XXXVII, 203.
[4] S. K. Maity, *Economic Life of Northern India in the Gupta period*, pp. 188-190

APPENDIX A

# KUṢĀṆA GOLD COINS

In early India the Kuṣāṇas were the first imperial ruling house to issue gold coins regularly. Their issues continued for a few generations from the time of Vima Kadphises.[1] This is significant evidence of the economic condition of the country of that time from various standpoints. Initially we have to investigate the questions why the Kuṣāṇas adopted gold as a part of their currency and how they managed to obtain the precious metal obviously in considerable amount.

As to the possible reasons for minting gold coins the following points need to be considered:

1. The issue of gold coins was one of the manifestations of the imperial might among the ancient rulers. It may be that the Kuṣāṇas just did what the Achaemenians, the Macedonians, the Seleucids and the Ptolemies did before, and what the contemporary Romans were doing then.[2]
2. To meet the demands of international trade going through their realm the Kuṣāṇas had to issue gold coins which would be acceptable to merchants of different countries for their intrinsic worth.[3]
3. The silver currency was debased during the reign of the Śaka ruler Azes II and that of his Parthian successors to such an extent that the Kuṣāṇas had no other option but to change the coin standard to avoid financial chaos and re-establish credit.[4]
4. The Kuṣāṇas had ready access to sources of gold denied to their predecessors in Northern India. Their territories beyond India proved helpful for this purpose. If Roman gold coins entered Northern India in large numbers the Kuṣāṇas had also the advantage of utilising them.

Of these the first reason is an obvious one, and no doubt was a significant factor in this matter. We noticed above that the Kuṣāṇa realm, comprising Upper India and Central Asian territories, contained within its boundaries important international trade routes and numerous trade marts. Perhaps the heaviest traffic passing through the Kuṣāṇa territories was in Chinese silk,[5] but excavations at Taxila and Begram show that many other commodities moved across this area towards both the East and the West. The imperial treasury was

[1] Rapson, *Indian coins,* p.17.

[2] Göbl, R. *Numismatic evidence relating to the date of Kaṇiṣka* (a paper in the SOAS seminar).

[3] *JRAS,* 1912, pp.981 f. (Kennedy, *The Secret of Kaṇiṣka,* ii).

[4] Marshall, Taxila, I, p.68. This was mostly in Taxila region and in the eastern parts of the empire.

[5] *JRAS,* 1912. pp. 981 f.

largely benefited by these transactions and we may infer that to help the traders of different countries it became necessary for the rulers to adopt gold currency which always enjoys universal acceptance without difficulty. The debased silver currency that the Kuṣāṇas inherited from the previous rulers must have proved itself a great hindrance for the above exchanges and thus it was necessary to change over to a better monetary standard.

The last point leads us to the question, how did it become possible for the Kuṣāṇas to issue such a large number of gold coins? It seems that the yield of gold from the sources within India[1] was not sufficient to meet imperial demands. Except for gold from the Oxus region, both alluvial and mineral, we do not know any other source of the precious metal inside the Kuṣāṇa territory beyond India. The gold resources of the Oxus valley are mentioned in the Greek and medieval legends[2] and, according to the classical writers a considerable amount of gold went to the Persian court from this region, comprising modern Bokhara, Northern Afghanistan and Dardistan.[3] We also know of the famous Oxus treasure containing, among other materials, a large number of gold objects showing prominent Persian influence, though the exact provenance of these finds cannot be properly determined. But besides its own wealth the Oxus region occupied an advantageous position for procuring gold from places outside the Kuṣāṇa empire.[4] It is held that Scythia i.e. the part of South Russia between the Carpathians and the Caucasus, where ample gold objects of magnificent execution have been found, imported gold from the Ural and even from the far away Altai in West Siberia and Mongolia, in the pre-Christian period. There are traces of ancient gold workings in these places.[5] Iran, which had accumulated a fabulous amount of gold under the Achaemenians and the Arsacids from Egypt and other parts of its far-flung empire, also imported the precious metal from Central Asia, and this had to be brought through the Oxus region which now formed a part of the Kuṣāṇa territory.[6] Under such circumstances it is reasonable to suppose that the Kuṣāṇas may have used the mines of the Ural and the Altai as sources of gold.

The generally accepted view, however, is that the Roman aurei, which entered the Kuṣāṇa realm in considerable quantity by way of trade, were re-minted into Kuṣāṇa gold coins.[7] But this view has not been adequately substantiated.

[1] Supra. pp. 61-62.

[2] *Pauly-Wissowa*, II, *Baktrianoi*, Col. 2806 f.

[3] It is obvious from Herodotus (III. 94, 98, 105, 106) that a considerable amount of gold was paid as a tribute to the Persian emperor in the fifth century B.C. from his Indian provinces, but the indication of the exact region is obscure. Later writers, such as Megasthenes, also do not clarify the situation. Diverse suggestions have been made to identify this region—North West India, Tibet, Oxus Valley. (See Bunbury, *History of Ancient Geography*, pp. 229-30.)

[4] Dalton, *The Treasure of the Oxus*, pp. XIX-XX.

[5] Minns, E.H., *Scythians and Greeks*, pp. 271 f, 368 f, 7

[6] Dalton, *loc. cit.*

[7] Cunningham, *Coins of the Indo-Scythians*, p. 78; Rapson, *Indian coins*, pp. 17-18; Wheeler, *Rome Beyond the Imperial Frontiers*, pp. 169-70; *Orientalia*, XVII (1948) pp. 205 f; *Cahiers d'histoire Mondiale*, III, 3 (1957) pp. 689 f.

Under the Kuṣāṇa regime there was regular trade with the different parts of the Roman empire through Western Indian ports and north-western overland routes, and one of the important reasons of Kuṣāṇa occupation of this part of India was to enjoy the profits of this trade. Moreover, Kuṣāṇa coin types were greatly influenced by those of the imperial Rome. But neither the close commercial connection between Rome and Kuṣāṇa India nor the fact that aurei served as a prototype to the Kuṣāṇa gold coins necessarily establishes that a large number of aurei entered the Kuṣāṇa realm. Roman coins, whether of gold or of any other metal, found in Northern India are very few compared to those in the south, because of the difference in the nature of foreign trade conducted in these two regions. In the south goods from the Western world were brought for local consumption but in the north it was mainly transit trade that passed through the Kuṣāṇa realm. As the participants in this trade were of diverse nationalities there was not much possibility of the coins of any particular country flowing into the Kuṣāṇa treasury as customs charges or otherwise. Possibly these charges were also paid in bullion and in merchandise itself.[1] From a classical source we know that there was exchange of commodities between Northern India and Egypt on the basis of barter.[2] All these points indicate that possibly Roman aurei did not enter the northern part of the country in considerable numbers, and that the Kuṣāṇas had to look for alternative sources of gold, which we have noted above.

But the Roman influence on the form of Kuṣāṇa gold coins is conspicuous. Some earlier scholars like Kennedy and Fleet ignored this obvious fact as they strongly held 58 B.C. as Kaṇiṣka's date and believed that the Kadphises group of the Kuṣāṇa monarchs ruled after the Kaṇiṣka group. According to them, the first appearance in the West of silk from China in early first century B.C. virtually brought a revolutionary change in the international trade of that time and to this phenomenon they connected all the peculiarities of Kuṣāṇa gold coins—the availability of the precious metal in large quantity, the diverse legends used on them and the syncretism of gods and goddesses of different faiths represented by them. As people of many countries and many religions participated in this silk trade, passing through the Kuṣāṇa dominions, the rulers had to issue gold coins bearing distinctive marks.[3]

But on numismatic grounds Kaṇiṣka's date cannot be pushed back further than the last quarter of the first century A.D. The coins of Kujula Kadphises bearing the influences of those of the last Indo-Greek King Harmaeus (75-55 B.C.), of Phraotes IV of Iran (38-33 B.C.) and of Augustus (29 B.C.—14 A.D.) and the coins of the Kaṇiṣka group of kings and of the later Kuṣāṇas, lead directly to the type called by Cunningham, 'Scytho-Sassanian', struck at the beginning of the fourth century A.D., and these clearly point out the chronological sequence of the Kuṣāṇa monarchs in India.[4] As the result of placing Kaṇiṣka long before his time some of the conclusions drawn by this old school cannot be accepted. Though by the late first century A.D. trade in Chinese silk was

[1] Supra, pp. 135-36.

[2] Philostratus, *Apollonius of Tyana*, Bk. III. 35.

[3] *JRAS*, 1912, pp. 981 f; *JRAS*, 1913(2) pp. 913-20. (Fleet—*Date of Kaṇiṣka*).

[4] *JRAS*, 1913(2), pp. 911-13. (Rapson, Date of Kaṇiṣka).

*still going on and perhaps in larger volume, there must have been considerable* change in the set-up of this business especially due to the establishment of the Roman empire. The participants were not the same peoples as a hundred years before. *We very much doubt whether the Arabs who, according to Kennedy,* brought the largest amount of gold to the north-western part of India to buy Chinese silk were still holding the same position. Another proposition of this school about the great influence of Greek coins on Kuṣāṇa issues is also wrong. But it is pretty obvious that the international commitment of the gold coins of Kuṣāṇas was responsible for the use on them of Greek characters which were then widely used in parts of West and Central Asia and of a pantheon of gods and goddesses of diverse faiths.

We shall now consider whether the Kuṣāṇas accepted for their gold coins the weight standard followed by any of the contemporary currencies with which they came in contact or they evolved a system of their own.

Non-Indian influence on Kuṣāṇa coins is so obvious that it seems ineffectual to approximate them to one of the systems of weight or denomination indigenous to early India. These systems have been worked out mostly from the evidence found in *Manu*, *Yājñavalkya* and similar texts, and they may be applied to a few groups of native coins of silver and base materials with minor adjustments.[1] But we are still in the dark about the weight standard of early Indian gold coins, the existence of which is claimed by some scholars.[2] There are no surviving specimens of *suvarṇa*, *niṣka* or *hiranya śatamāna* which are held to be different terms for the earliest gold coins and the Vedic literature provides no clue to determine their particulars. In fact, none of the references to these objects conclusively proves that they were coins. Early foreign sources refer to gold dust[3] or gold pieces,[4] but not to any specific gold coin of India and the nature of the native gold coins, called *Caltis*, which according to the Periplus circulated in the eastern coastal area, is quite undefined.[5] Thus the Kuṣāṇas found no inspiration from inside India for their gold currency.

It has been suggested that Kuṣāṇa mints were situated either at Balkh or at Taxila.[6] It may be that when Kaniṣka changed his capital to Puruṣapura (Peshawar), Taxila, owing to its comparative proximity, became a more important place and the royal mint was transferred there. Mint marks typical of Taxila indicate this.[7]

From the coins bearing names both of Hermaeus, the last king of the Indo-Greeks, and Kadphises I it is obvious that the currency of the Kuṣāṇas was influenced by that of the Indo-Greeks from the very beginning.[8] As no silver

[1] *Comp. H I*, pp 778-80; Cunningham—*Coins of Ancient India*, pp. 42 f.

[2] Bandyopadhyaya, *Economic Life and Progress in Ancient India*, I, pp. 180 f; Chattopadhyaya, *Early History of North India*, p. 83.

[3] *Herodotus*, III. 94.

[4] Isaiah, XII. 12. refers to golden wedge of Ophir. This reference can be accepted with reservation for we are not sure whether Ophir was in India.

[5] Periplus, 63. See also P. 259 of Schoff's edition.

[6] Göbl, *Paper in the SOAS Seminar.*

[7] *loc. cit.*

[8] *CHI*, I, p. 561.

coins of the Kuṣāṇas have been found it has been suggested that the Indo-Greek and Śaka silver currency, owing to its profuse issue, was so well known and so readily accepted in the Kuṣāṇa realm that it was unnecessary to issue further coins in this metal.[1] But a large portion of this silver currency was extremely debased and this, as we noted above, was probably one of the reasons behind the Kuṣāṇas issuing gold coins.[2] The Indo-Greeks initially minted coins on the Attic weight standard but from Eucratides I onwards they gradually changed to a new standard which is nearer to that of the Persian sigli.[3] But the Kuṣāṇas followed neither of these for their gold issues.

*The average weight of a Kuṣāṇa gold coin issued from the time of* Vima Kadphises to that of Vāsudeva I is 123.2 grains.[4] This is much below the Attic standard of 134.4 grains which was followed by the Greeks in Bactria and India with little variation.[5] Of the Indo-Greeks, Menander (d.130 B.C.) was perhaps the last to issue gold coins.[6] Between him and Vima Kadphises, there is a long gap, when no fresh gold coin was issued in Bactria and North-western India.[7]

Cunningham has suggested that old Persian darics were current in this area until the appearance of Roman aurei.[8] But very few darics have been discovered in India. The Arsacids, who came to power in Persia in the later part of the third century B.C., did not issue any gold coin throughout their rule of 500 years. So we cannot definitely hold that Persian coin whether of the earlier or the later period, had any influence on Kuṣāṇa gold coins. Rather some of the Sassanid coins of the late third century reflect Kuṣāṇa influence.[9]

China was another country with which the imperial Kuṣāṇas came into contact from the beginning of their rule. Brisk business was going on between China and the Roman empire through the Kuṣāṇa realm, but we do not find any sign of the movement of Chinese money westwards. As China imported Roman finished products[10] presumably their trade was conducted on the basis of barter. As regards the way of trade between India and China we have no definite information. There is recorded evidence of gold (not gold coins) entering India in the sixteenth century from China and Tibet,[11] but we are in the dark about the earlier situation. From what we know about early Chinese gold coins it seems that there was no direct connection between them and the Kuṣāṇa gold issues.

[1] Cunningham, *Coins of the Indo-Scythians*, pp. 20-21.

[2] Supra, pp. 179-80.

[3] *BMC*, India, (*The Greek and the Scythic Kings of Bactria*) pp. IXVII-LXVIII.

[4] Cunningham, *op.cit.*, p. 20.

[5] *BMC*, India, *op.cit.*, pp. LXVII-LXIX.

[6] Narain, *The Indo-Greeks*, p. 99.

[7] *BMC*, India, *op.cit.*, pp. LIII; Rapson, *Indian coins*, p. 17.

[8] Cunningham, *op.cit.*, pp. 79-80.

[9] Arethuse, 1928 pp. 19 f (Bataille, *Notes sur la Numismatiques des Koushans et des Koushanshahs Sassanides*); *JNSI*, XVIII, pp. 13 f. (Bivar—*The Kuṣāṇa Sassanian Coin Series*).

[10] Rostovtzeff, *Rome*, p. 263.

[11] *BMC Chine*, p. XXV.

The leading currency of the time when the Kuṣānas started ruling in Central Asia and Northern India was that of the Roman empire. After Augustus established peace in the Mediterranean region, trade between this area and Asian countries developed and soon Rome became the best buyer of oriental luxuries. So Roman aurei had possibly appeared in the bazars of the Kuṣāṇa dominions when Vima issued his gold coins. From the weight and typology a close connection between Roman aurei and Kuṣāṇa gold coins—*dīnāras*—can easily be detected. The weight of dīnāra issued in the period from Vima to Vāsudeva I remained more or less constant.[1] We find almost the same weight in the pre-reform aurei which the Roman merchants used only for paying abroad.[2] Thus the Kuṣāṇas found a prototype in the aureus which entered India by way of trade from the later part of the first century B.C.

The close similarity between the gold coins of the two empires may also be due to a technical reason. By the earlier part of the Christian era, though the heyday of the Greeks was over, Greek artisans were spread throughout the Mediterranean region and Western Asia, including the Oxus valley and North-western India. The arts and crafts of both Rome and Parthia owed much to Greek workmanship.[3] Alexandria was one of the most famous centres of the skilful Greek artisans of that time. Numismatists hold that the Alexandrian pattern of coins partly agrees with the Roman variety and that Alexandrian engravers probably visited Kuṣāṇa courts with their pattern books.[4] It may be that these artisans from Alexandria helped the mints of both Roman and Kuṣāṇa empires.

We have noted above that though the Kuṣāṇas did not issue silver coins, those done by their predecessors, the Greeks and the Śakas, were probably still in circulation. This is also suggested by the Periplus (47). In these circumstances when two sets of coins, one of gold and the other of silver, though initially issued by different governments, were existing side by side, a fixed relation in coinage of these two metals had to be maintained. Suggestions have been made that the Kuṣāṇas had somehow to adjust the weight standard of their dīnāras to the silver coins current in their realm according to the contemporary ratio between gold and silver.[5]

The average weight of the gold coins issued by the Kuṣāṇas is 123.3 gr. and that of the silver drachms issued by the Indo-Greek kings from the time of

[1] 123.3 grs. is the average weight of Kuṣāṇa gold coin which according to Cunningham (*op.cit.*, pp. 20-22) was called dīnāra. This term derived from Latin dinarius was adopted by the Guptas also for their gold coins, and survived in Upper India for a long time.

[2] 122.9 gr. is the weight of aureus of the period from Augustus to Nero. In 64 A.D. the latter changed the weight to 114.10 gr. (Mattingly, *Roman coins*, pp. 122-23).

We have discussed above (p. 133) why pre-reform aurei were used by the Romans for foreign payments over a long time after 64 A.D.

[3] *CAH*, IX. p. 591; Ghirshman, *Iran* p. 268; Rostovtzeff, *Rome*, p. 190.

[4] Göbl, *op.cit.*

[5] Cunningham, *op.cit.*, p. 23.

Eucratides is roughly 148 gr.[1] Following the Attic system of 20 silver drachmas having purchasing power equal to that of one gold stater a Kuṣāṇa dīnāra would be worth $148 \times \frac{20}{2}$ or 1480 gr. of silver. Therefore the relation in value between gold and silver, current under the Kuṣāṇa regime comes to 123.3:1480 or about 1:12. Almost the same ratio between the two precious metals was prevalent in the contemporary Roman world.[2] Though there is very little difference in weight between the early imperial aureus (122.9 gr.) and the dīnāra of the Kuṣāṇas it seems that the latter did not just copy the weight standard of Roman gold coin, but rather adopted a system which had to be determined by the then market value of gold in relation to silver. Unlike the fluctuating weight of the aureus during the first two centuries, A.D., Kuṣāṇa gold coins remained fairly constant (in weight) from the time of Vima Kadphises to that of Vasudeva I covering the greater part of the same period.[3] We think that from the fact that the Kuṣāṇas did not recoin the existing silver money it may be inferred that the Kuṣāṇa dināra was not a reminted issue of the aureus but a coin made independently.

Double dīnāra, dīnāra and quarter dīnāra were the usual denominations of Kuṣāṇa gold coins. A few half-dīnāras minted by Huviṣka have also been found.

After Vāsudeva I the Kuṣāṇa gold coins became gradually debased and their style and fabric deteriorated.[4] This happened mainly on account of political disintegration during the later phase of the rule of the Kuṣāṇas. Trade with the outside world was going on almost up to the end of the third century A.D., though it was no longer at its zenith.[5]

From their distribution throughout the wide Kuṣāṇa empire and in lands beyond it, even in as far a country as Abyssinia,[6] it is evident that the Kuṣāṇa gold coins had to some extent, won the confidence of a busy region of the contemporary commercial world.

[1] Canningham, *op. cit.* pp. 19-23.
[2] *JRAS*, 1912 (2) pp. 995-99; Sutherland, *Gold*, p. 99.
[3] Cunningham, *op.cit.*, p. 79.
[4] Rapson, *Indian coins*, p. 18.
[5] Supra; pp. 137-38.
[6] *Archaeologia*, XCVII (1959), p. 53.

APPENDIX B

# EXCHANGE OF COINS AT BARYGAZA

A passage in the Periplus (49) states that gold and silver coins which were brought to Barygaza from the West were exchanged for the local issues at a profit. During the time of the Periplus, two types of silver coins were perhaps current in Barygaza, the coins of Nambanus or Nahapāna (41), and those of Apollodotus and Menander, the latter in particular the author of the Periplus found there in circulation (47). How was the exchange of either of these groups of coins made for the Western silver coins which were undoubtedly the Roman denarii? Did it take place on the basis of their buying capacity or on the proportion and purity of silver contained in them? We cannot form any idea about the former, but as regards silver content the denarii were far purer than Nahapāna's coins. The silver coins of Apollodotus and Menander were, however, no less pure than the denarii and if they were exchanged against each other the foreign traders could have made some profit under certain circumstances.[1] But we have doubts about the circulation of Indo-Greek coins in the vicinity of Barygaza by the time of the Periplus as current money.[2] In that case to justify the above statement in the Periplus we have to believe that the denarii were buying more than it was possible to obtain with the debased silver coins of Nahapāna and thus the former were in an advantageous position when they were exchanged against the Śaka coins.

It has been suggested that Śakas and Andhras exchanged their debased silver coins for the denarii even at a loss to get better silver which they melted down. This also explains the dearth of denarii finds in this region.[3]

We do not know of any gold coins issued by the local Western Indian rulers which could have been exchanged with the Roman aurei. Possibly the aureii were sold as bullion against local silver coins. As the Periplus gives no hint of the exchange rate the volume of the profit made by the foreigners cannot be worked out.

[1] The average weight of denarius was 61·46 gr. before Nero who brought it down to 52.68 gr. (Mattingly, *op. cit.*, pp. 120-21). The average weight of the silver coins of Apollodotus and Menander varied from 37 to 40 gr. (*BMC*, pp. 34, 46). If the ratio of exchange between denarius and the Indo-Greek silver coin was 1:2 the former held a good bargaining position.

[2] Supra, p. 108.

[3] Warmington, *op. cit.* p. 289.

APPENDIX C

# A FEW POINTS ON METALLURGY AS FOUND IN THE ARTHAŚĀSTRA[1]

A Greek miner Gorgos who seems to have visited India with the contingents of Alexander reported that the Indians were ignorant of the art of mining and smelting, and therefore, though they possessed gold and silver resources, they could not make proper use of them.[2] But from the little that we know of the metallurgical knowledge of the early Indians, as evidenced from the objects unearthed in different parts of the country which we have described in the section on industry, it seems that the experience of the Greek engineer was limited to certain parts of North-western India where such ignorance prevailed. About a century before him one of his compatriots spoke highly of Indian steel.[3]

The problem is that up to the end of our period there is no indigenous literature on metallurgy except a little information to be gathered from the *Arthaśāstra*. We shall try to analyse very briefly how far this information indicates developed metallurgical knowledge. In Book II—chapters 12 and 13—of this text, the ores of different metals, alloys necessary for extracting them, methods of removing impurities from ores, how metals are softened and combined, and other incidental processes have been described, though not very methodically.

According to the *Arthaśāstra* an expert observer could decide the presence, nature and richness of ores from their colour, smell and taste. Ores which are coloured orange or pale red contain iron. Obviously this refers to the brown and red haematites found abundantly in India.[4] Copper ores are heavy, greasy and soft, and their colour may be tawny, green, pale red and red. Lead ores smell like raw meat and have the colour of burnt earth. Gold ores have the colours of rose-apple, mango, fan-palm, ripe turmeric etc. and they are transparent, heavy and greasy. These descriptions of ores are often correct.

To make them ductile metals are softened and for this purpose the *Arthaśāstra* prescribes that various odd things such as, kandalī (mushroom), ashes of barley, black beans, palāśa (butea frondosa), pīlu (carnea arborea), milk of cow and sheep, and cow's teeth and horn should be mixed with them. On the best advice we can find, most of these materials would have no effect on the metals with which they are to be brought in contact. However, ash is helpful in preventing brittleness in metals and the alkali and carbon properties of cow's teeth and horn respectively would give a metal lasting softness when heated with it.

[1] Mr. F. R. Curry of the Imperial College of Science and Technology (Dept. of Metallurgy) helped us with this study.

[2] McCrindle, *Ancient India as Described in Classical Literature*, p. 38.

[3] Supra. p. 49.

[4] Neogi, *Iron in Ancient India*, p. 10.

To remove impurities from gold ores it is prescribed that lead should be mixed with impure gold, then be heated with cow-dung, and lastly should be put into oil mixed with cow-dung. In purifying silver powdered bone is to be added to lead and cow-dung.

In the light of modern metallurgical knowledge most of the above prescriptions seem to be almost meaningless, technically speaking. It may be that some of them have magico-ritual significance. For a long time there was a magical aspect of the smith's trade in every country and what we know of ancient metallurgy in other countries does not always stand scientific scrutiny.

But there are a few statements in the *Arthaśāstra* describing techniques which are still employed by metallurgists. From the reference to liquids which, when dropped on water, spread like oil to which dirt and filth adhere, it seems that the "flotation process" was known in its time. We can ignore much of the colourful descriptions of refining and purifying given in the text, but the use of lead for the purpose of removing impurities in gold and silver shows that "liquation" was practised.

However, from the style of writing it is obvious that the metallurgical information found in the *Arthaśāstra* comes from observations made by a lay man rather than one who knew the actual technology. In a text where the main subject of study is the art of government such perfunctory treatment of a complicated mechanical subject is understandable.

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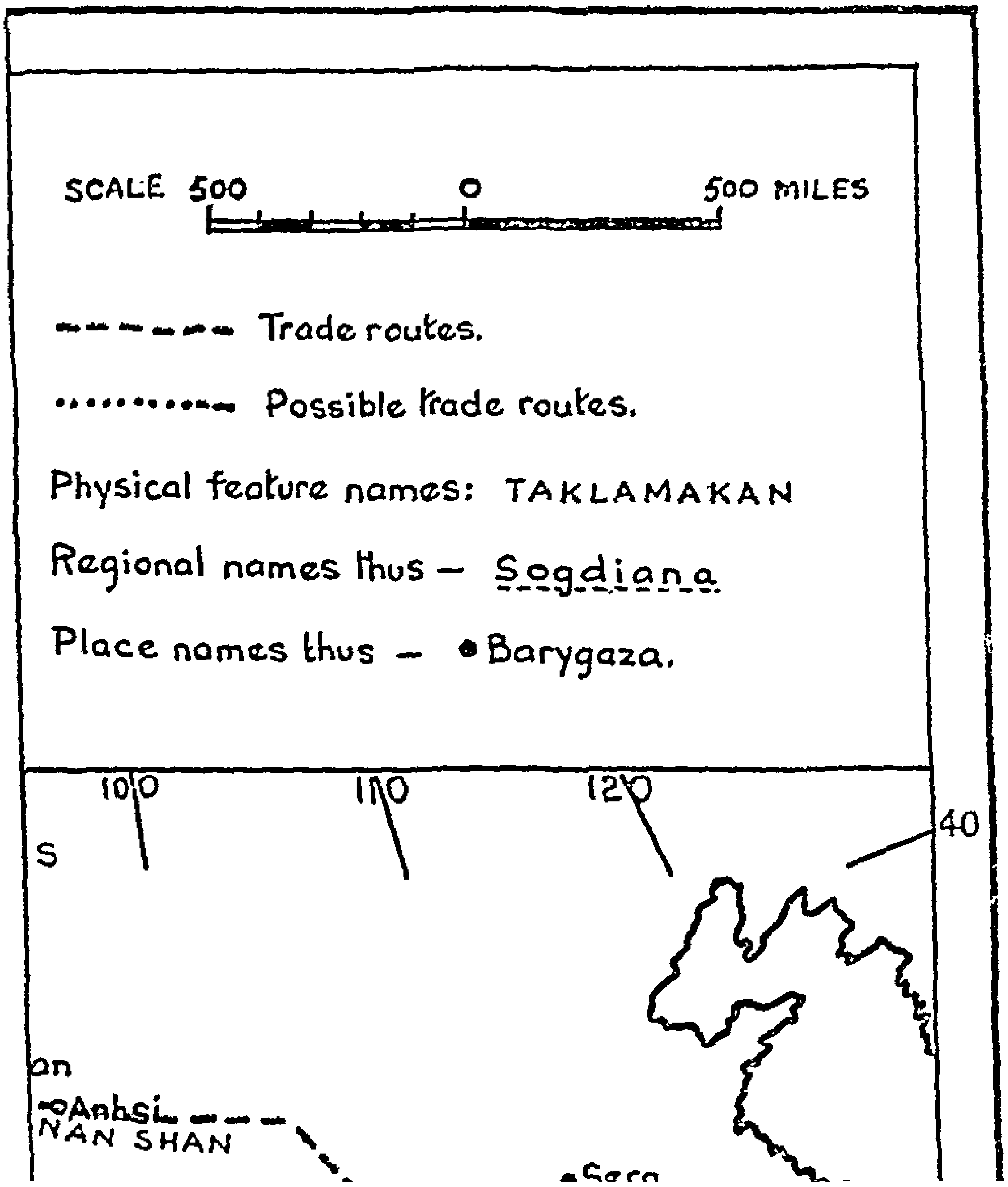
SCALE 500 0 500 MILES
Trade routes.
Possible trade routes.
Physical feature names: TAKLAMAKAN
Regional names thus — Sogdiana
Place names thus — • Barygaza.
100
110
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NAN SHAN